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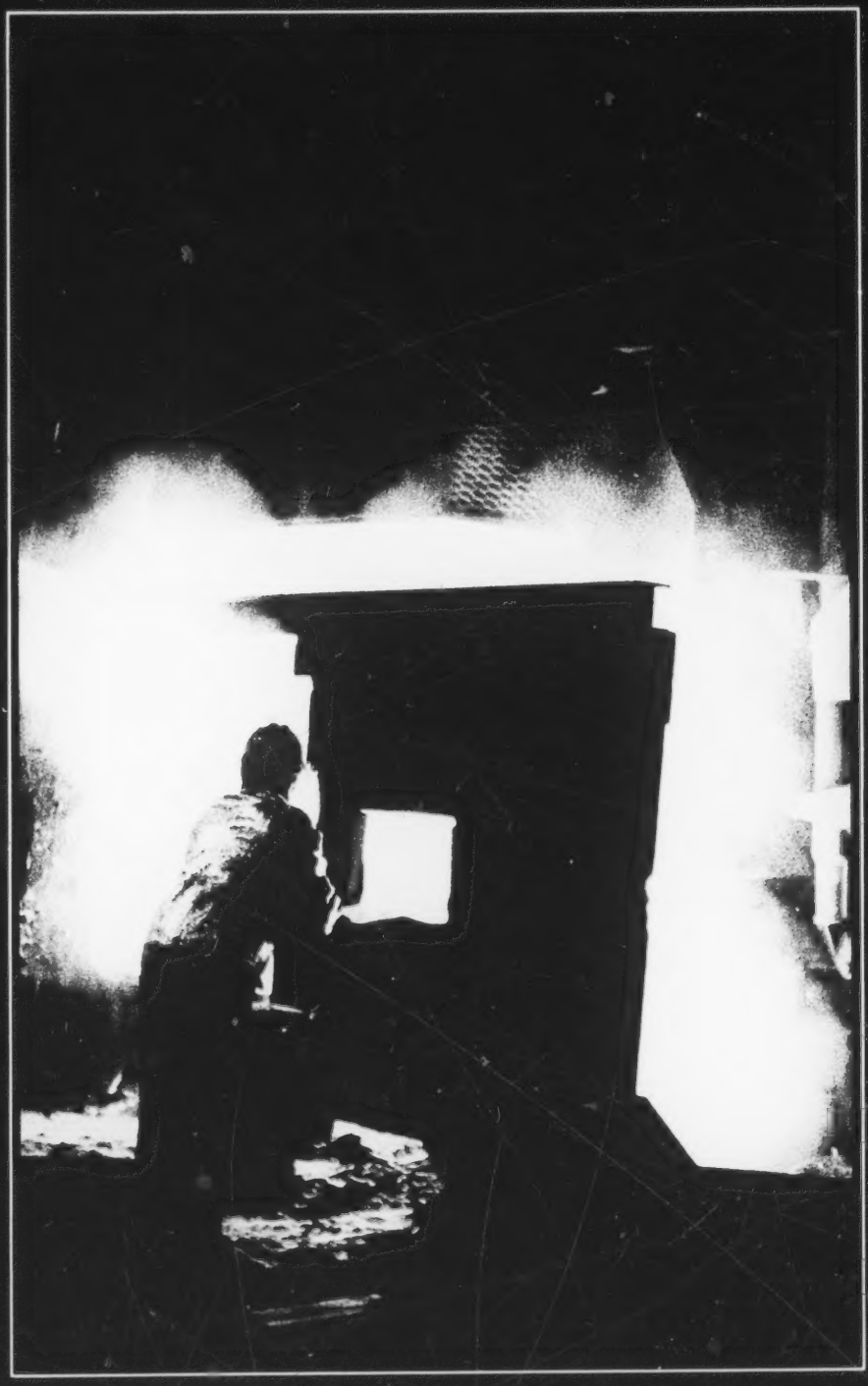
CHILTON'S

IRON AGE METALS PRODUCER

January 2, 1984



WORLD ELECTRIC FURNACE REPORT: GROWTH THAT WON'T STOP

METALPRODUCING HOT SPOT: MINI vs. INTEGRATED MILL DEBATE

IN PLANT SPOTLIGHT: SHULTZ STEEL'S HIGH TECH COMMITMENT

Plus

1984 FORECAST: PAYDIRT! AFTER A LONG WAIT

and

BEYOND NEXT YEAR: INDUSTRY'S TOP EXECS OUT ON A LIMB

JANUARY 2, 1984 VOL. 227, NO. 1

CHILTON'S
IRON AGE
METALS PRODUCER

Photograph courtesy of Lukens, Inc.

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'84 ANNUAL FORECAST

PAYDIRT! AFTER A LONG WAIT

Just about all critical business signs now point to continued recovery through 1984.

BY JOHN D. BAXTER

Label 1984 'The Road Back.' That's what it will be for most manufacturing industries.

Recovery will be strong for them. The recovery for most metals producing and manufacturing companies this year will likely run well ahead of the growth rate of the overall U.S. economy.

It's Operation Catch-Up again—as usual for industrial goods manufacturing lines. The recovery is now in its 14th month and many manufacturing companies are just now getting up off the canvas. Starting recovery later, their quarterly gains will now be steeper than for the economy as a whole.

The U.S. economy, as measured by inflation-adjusted Gross National Product, will likely grow by more than 5 pct for 1984. This is close to a consensus view that ranges from 4.5 pct to 5.5 pct. Last year's growth came to an estimated 3.4 pct.

The growth rate for durable goods new orders in real terms this year is forecast at about 12 pct. That's 16.6 pct growth in current dollars less an inflation rate for durable goods of 4.5 pct. This growth is shown in the chart here expressed in average current dollar volume of orders per month.

That growth in durables orders, of which about 85 pct are for metals and manufacturing products may not seem very strong. After all, orders last year were up nearly the same.

But the big year-to-year difference is in the makeup of the orders. Last year, new auto orders, up a resounding 30 pct, accounted for a lop-sided share of the gain in total orders. But the bigger gains in motor vehicles for this recovery appear to be past. There will be more gains in autos but not likely such dramatic ones as seen last year.

This shift in emphasis from autos means the durable goods recovery will not only continue strong but will spread throughout most heavy-goods manufacturing. Many industries and companies until now largely untouched by the recovery, will feel the magic wand in 1984.

Last year, the hero of the recovery was the consumer. For example, consumer spending for durable goods in the second quarter rose by 33 pct at an annual rate over the first quarter. And that first quarter had already seen a strong gain.

The start of the move to front and center in the recovery by industrial goods manufacturers was seen in the third quarter last year. In that quarter, business fixed investment rose by an inflation-adjusted 16 pct. At the same time, personal consumption expenditures had cooled to a 3 pct annual growth rate.

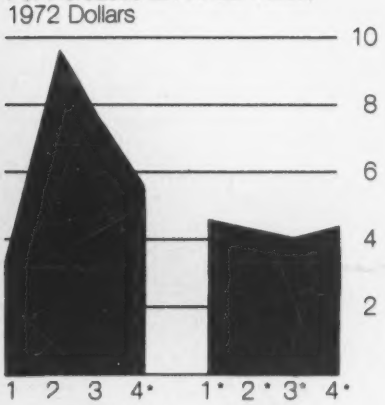
This recovery participation by manufacturered industrial goods lines is the best assurance there is that the business recovery will be a durable one. When these big-tag goods join fully in an upturn, then a recovery period usually matures rapidly into a full-fledged business expansion period.

Just about all critical business signs now point to continued recovery through 1984. The economy—measured by real GNP—grew in every quarter last year. And more growth is certainly assured for the current quarter. That's a roll. And it is the first reason to believe that short-term growth will continue strong.

Prices have cooled. That's another big plus sign pointing to further recovery. The GNP deflator—the most comprehensive measure of prices in the economy—rose by 4.2 pct last year. That followed inflation rates of 9.4 pct and 6.0 pct in 1981 and 1982, respectively. The forecast this year, as business volume growth comes on top of recent growth, is for only a slight upward move in prices. This rate should be about 4.8 pct. Manufacturered goods prices at the factory level should be very close to that following an unsustainably low 1.8 pct last year.

Prices will be held in check chiefly because the economy will be operating at below its potential for some time yet.

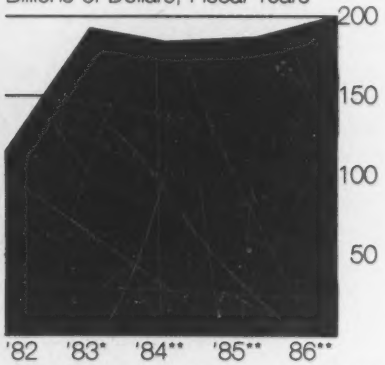
GNP
Pct Increases at Annual Rates, 1972 Dollars



*IA estimate
Source: U.S. Commerce Dept.

1983 (Full Year)..... 3.4 Pct
1984 (Full Year)..... 5.2 Pct

Federal Budget Deficits
Billions of Dollars, Fiscal Years



1972-81 Annual Ave..... $39.3
1976 Old Record High..... 66.4

* Preliminary
** Projections—Congressional Budget Office
Source: U.S. Commerce Dept.

Another plus for 1984 recovery is in industrial production. It was up an estimated 6.5 pct last year and should come close to a 10 pct growth rate this year.

At the close of last year, industrial production had gone up 12 straight months. Too, the capacity utilization rate for all manufacturing was at 78.6 pct —up 9 pct from the year-ago level.

Inventories were being built by manufacturers as last year ended. They were expanded by a hefty $7.2 billion in the closing quarter and can be expected to rise by $8.9 billion in the current quarter.

Still, because of the very suprising strength of the economic recovery in the last three quarters last year, goods shortages are popping up all across the U.S. industry spectrum. This suggests a continued heavy orders flow as efforts are made by manufacturers to get their stocks up to par in the months ahead.

Another good 'vibe'—it is unlikely that big wage hikes will eat up much of the gains scored by business this year. A Conference Board panel of nine labor experts recently concluded, "Despite a continuing economic recovery, rising competitive pressures will hold down wage increases for virtually all employees in 1984."

The panel sees average annual earnings rising by a modest 5 pct this year.

As one of the panelists noted, "Union bargainers in 1984 are still going to proceed cautiously because of the very real threat of unemployment." The panel expects unemployment to average 8.5 pct this year, down only slightly from current levels.

The combination of high unemployment and intense competition where companies can't easily turn to price relief, puts management in a bargain-tough position.

High unemployment is also expected to give a special spur to labor productivity in 1984.

Some of the brightest news of all is happening—and will likely continue to happen—in corporate profits. These rose strongly last year, on a before-tax basis, by 21 pct. Several bank and industry economists put the rise in earnings this year at 25 pct.

As noted, most key elements of the economy will be leaping forward this year from growth already underway last year. However, one critical element will be swinging strongly from red ink to black ink in 1984. That is plant and equipment spending.

Last year, this investment declined by 4.2 pct from 1982. This year, it should be up by about 9 pct.

Capital spending picked up a lot of momentum in the last two quarters last year. At an annual rate, this spending ran some 7 pct higher than in the first half. This strong upbeat was felt by many companies in heavy-goods lines because much of it went for information technology capital goods. Example:Through the first three quarters of 1983, orders for office and computing machines were up 29 pct over the same period of 1982. Orders for metalworking machinery lines were up only 10 pct. Too, notably, these respective gains came on top of a good showing in 1982 for office and computing machines and a poor showing for metalworking machinery.

Now, with factory orders, production and profits all up, it is just about certain that plant spending should continue moving ahead—more strongly and more broadly.

So, it appears that all the instruments in the recovery band will be playing in tune together this year. Heavy goods manufacturing lines, the big tubas, are now starting to join in strongly.

Conference Board chief economist Albert T. Sommers has summed up the 1984 outlook succinctly.

"We see no local explosions and no virtuoso performances in any sector of the economy next year," he says. "Instead, we expect a broadly distributed expansion, as distinguished from the powerful but not fully coordinated recovery of 1983."

The 12 economic authorities who make up the Conference Board's annual Economic Forum cite "declining inflationary pressures" as the key reason for their forecast of solid growth (5.4 pct) this year. They note "stable energy prices, a further dip in unit labor costs, rising productivity and the deflationary impact of a high-priced U.S. dollar."

Altogether, the economic scene as 1984 opens is a bright and hopeful one. Business is on the move, expanding

strongly, and the expansion is spreading rapidly across all spectrums of the economy.

Too, economic expansion is now occurring in the rest of the industrial world. This means the U.S. economy will not be tethered to a dragging world economy in 1984.

The Gross Domestic Product (GNP less foreign sales) of the 10 nations of the European Communities (EC) is forecast by the EC to rise by 1.5 pct. That is not up to the strength level of the U.S. recovery, but it is a lot better than the paltry 0.5 pct rise scored by the EC last year.

As noted, the 'plusses' run big for this year.

But there are those who see, for sometime next year—and a few who see for later this year—a brick wall looming across the recovery raceway. Depending on who the worrier is, that brick wall is made up of the staggering Federal budget deficit, a likely tight money policy by the Fed as prices start to edge up, the record-shattering U.S. trade deficit or the default-threatening debt load of Less Developed Countries (LDCs).

It is true that any of these so-called 'time bombs' could explode and derail the recovery. It's also true, of course, they might be de-fused through evolving strength in the economy or through effective policy solutions.

The greatest concern centers on the high and scary Federal budget deficits. The fear is that a credit crunch could develop as government borrowing to finance this deficit—now gobbling up about 50 pct of the nation's credit supply—runs smack into stepped-up business borrowing as the economy expands further. Such a collision could lead to high recovery-threatening interest rates.

The Fed is a great source of worry to many economists and business executives. The recessions of 1981 and 1982 attest largely to the power of the Fed to rein in the economy. If the Fed peers through a steaming-up economy and sees the spectre of killer inflation lurking on the horizon, then it could be expected to again turn to its favored weapon of tight money supply.

Almost certainly then, interest rates would climb—and climb.

The U.S. trade deficit has soared in recent years. It's cost to U.S. manufacturing is clear enough to both management and labor. As noted in the chart here, the trade deficit has gone from $28 billion as recently as 1981 to an estimated $75 billion last year. And U.S. Commerce Dept. officials are now talking of strong chances for a $90-100 billion red-ink bath this year.

As one economist noted, "Somewhere there is a point where this kind of imbalance could untrack our economic recovery. A lot of money is flowing overseas and so are a lot of orders that might otherwise go to U.S. industry."

In the case of concern over the LDC's debt problem, the worry centers on possible default by one or more of these debtor nations. There seems at present, no way a number of these back-to-the-wall countries can pay off even current and over-due interest costs let alone principal repayment.

The fear is that if any of these countries throw in the default towel, it is possible that panic would grip international financial circles. What this could lead to is impossible to know. But, for sure, any effect on the U.S. economy would not be favorable.

All these threats to continued recovery cast a dark shadow across the U.S. economy even as high interest rates show a persistent staying power. This is especially true for long-term rates. For example, 30-year Treasury bonds (mid-December), ran at a 11.8 pct rate. That's actually up from a year-ago rate of 10.6 pct.

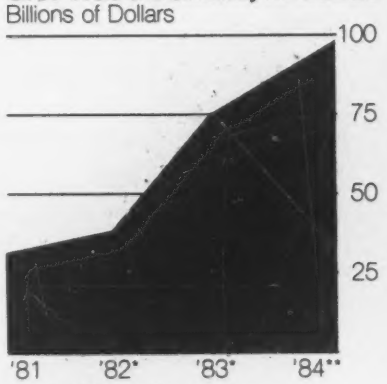
At the same time, average Aaa industrial bond yields were running at 12 pct versus a low earlier in the year of 10.7 pct.

Significantly, it is long-term credit that is a prime feeder of plant and equipment spending. And if the money can't be found at reasonable rates to finance capital investment needs, then it is hard to imagine a durable recovery taking place.

But, in sum, the facts of the present on the U.S. economic recovery seem to far outweigh the fears of the future. This is especially true for the year 1984.

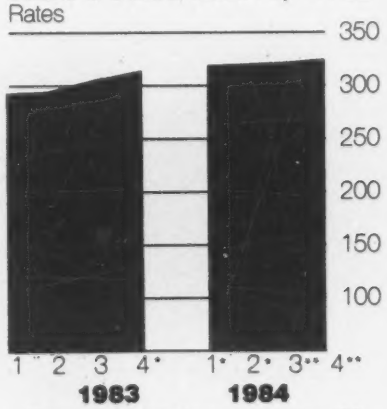
The piper may be waiting, but he doesn't appear to be hiding behind any of the calendar pages of 1984. □

U.S. Trade Deficits, in Goods
Billions of Dollars



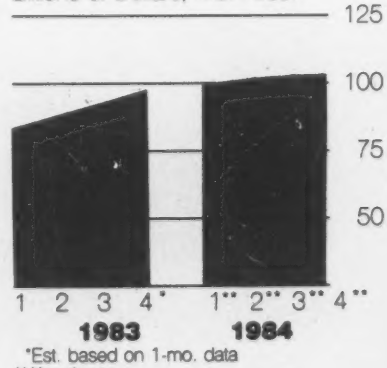
* Est. based on 10-mos. data
** Forecast—*IA*
Source: U.S. Commerce Dept.

Plant Spending
Billions of Dollars, Seas. Adj. Annual Rates



*Based on business survey, Oct.-Nov. '83
**IA Forecast
Source: U.S. Commerce Dept.

New Orders, Durable Goods
Billions of Dollars, Mo. Aves.



*Est. based on 1-mo. data
**IA estimate
Source: U.S. Commerce Dept.

STEEL

Steel shipments are expected to go from about 67 million tons in 1983 to about 78 million tons in 1984.

Continued improvement is expected in consumer markets and there is supposed to be a partial recovery of the capital goods sector.

If steel prices firm up, there could be a dramatic profit swing in steel. The mills have slashed their work forces and reduced all costs. With firm prices and added volume, profits could soar higher than expected.

Imports are one big source of uncertainty in the steel picture. The mills have been projecting imports of about 16 million tons for both 1983 and 1984. In the last three months reported, foreign steel was arriving at an annual rate of more than 19 million tons.

If the foreign flow continues, it could put a dent in a recovery that will be broad but modest. Machinery, construction, appliance, auto, oil and gas and all other market segments should show gains in 1984. Unless the gains exceed expectations, total demand will be well below what used to be considered normal.

An extreme example of the expected recovery is provided by the railroad industry. After falling nearly 70 pct in 1983, steel shipments to the railroads are due to rise 80 pct in 1984. These percentages might suggest a powerful upswing, but 1984 railroad steel intake will be only about one-sixth of what it was a few years ago.

In the oil and gas market, the number of drilling rigs in service is expected to rise from an average of about 2,200 in 1983 to an average of 2,700 in 1984. That will bring a 10 pct rise in steel consumption, but it won't bring back the 1981 boom. In that year, the rig count went over 4,000.

Auto sales should rise again in 1984 and with car inventories low, production should go up even more. Production should rise, that is, if the auto companies and their suppliers can move into high gear.

Going into 1984, steel producers had fallen behind in their deliveries of sheet to auto plants and others. Although steel operations were below 60 pct in most of the fourth quarter, sheet lead times were stretching out and deliveries were lagging.

The delivery situation was partly a reflection of mill caution. Having been killed by price cutting over the past two years, the mills were guarding against over-production.

In addition, the transition from a deep, devastating depression to even a partial recovery is proving difficult. In 1982, sheet production reflected auto production of only 5 million cars. In 1984, auto production will approach 8 million cars.

With manpower depleted and many facilities retired, the mills aren't finding it easy to adjust to a 60 pct jump in a key market. As the recovery broadens, the same difficulty could arise in other markets and products.

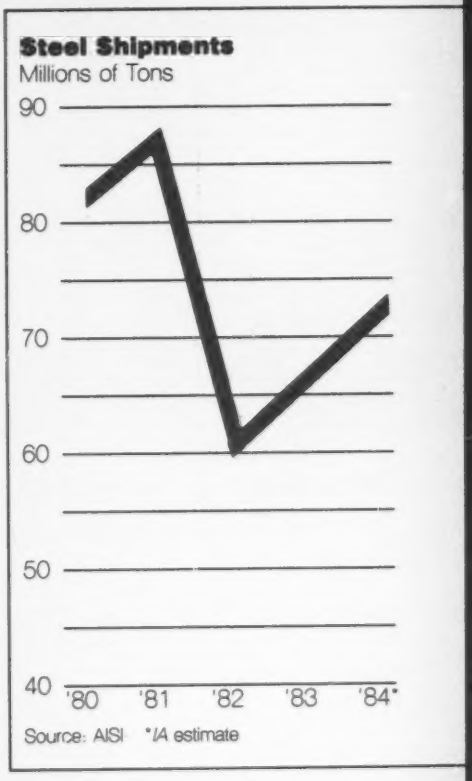
It is probably far-fetched to suggest a steel shortage in 1984, but no one really knows how much effective steel capacity is available.

One slice of capacity was removed in 1983 when Kaiser Steel Corp. terminated steelmaking operations. The proposed merger of Republic Steel Corp. into LTV Corp. will bring further contraction and consolidation. More steel mergers are predicted.

As of mid-December, everyone was waiting for United States Steel Corp. to reveal its consolidation plan. Almost all of U. S. Steel's production centers were mentioned in speculations on facility cuts.

There is uncertainty about steel capacity, but the steel market outlook is equally uncertain. It's reasonable to assume that any surprises in the steel market situation should be on the upside. The projected 1984 shipments are incredibly low for the second year of a recovery.

It is probably far-fetched to suggest a steel shortage in 1984, but no one really knows how much effective steel capacity is available.



NONFERROUS

The business recovery of 1983 was kinder to aluminum than it was to copper, lead and zinc. It wasn't kind to nickel or molybdenum at all.

The difference was on the label. It was a consumer-led recovery and benefitted mainly commodities and products serving that particular market. This shoved aluminum shipments back on the track (particularly with domestic car and truck production up about 32 pct and 25 pct respectively) and it also helped copper, zinc and lead consumption to lesser degrees.

What copper needed to complete the picture—and nickel and molybdenum needed even more—was a revival in the industrial sector itself. Capital spending was down about 3.5 pct last year, on an inflation-adjusted basis, and that was from 5.5 pct drop in real capital spending the year before. There was a surge in capital spending in the latter months of 1983 and government economists have forecast a further, albeit slower, rate of gain in the first half of 1984.

Domestic copper producers treaded water last year as far as prices and production were concerned. Increased shipments didn't help either case. The hedge market inventory ruled in the price area and there wasn't any room for higher domestic production. U.S. producers weren't exactly overburdened with inventory as the new year began, which means they still are poised for fast recovery once the capital goods market beckons.

Copper users worked from conservatively-held inventories all year, a policy that today seems to cover a broad range of production materials.

Aluminum production here and abroad picked up smartly in the final quarter of 1983, reflecting increased shipments (which were expected to show a gain of at least 14 pct for the year) and a steady whittling down of domestic producers' stocks. Aluminum industry observers foresee a gain of 10 pct in shipments this year, which would put the industry over its record of 7.43 million tons in 1979.

Price recovery in aluminum was most evident in ingot, but the U.S. producers were beginning to improve their markups on flat rolled items, including common alloy sheet, as the year drew to a close. Rigid container sheet remained a strong market—and a crowded one with new capacity coming onstream and Japanese material still coming into the U.S. market despite higher Japanese raw material costs.

The aluminum companies had just about sewed up the beer and beverage can market, leaving further growth in this end of the business awaiting the success of their planned invasion of steel's food can market.

Zinc consumption improved last year with increased car production and the apparent success of the zinc penny—a market won in large part by expectations that copper prices were heading for the roof. Domestic zinc production was up a bit, but imports continued to claim the biggest share of the U.S. market.

Lead prices and production were static almost all the way through 1983. Russian buying on west European markets was down sharply from earlier in the 1980s.

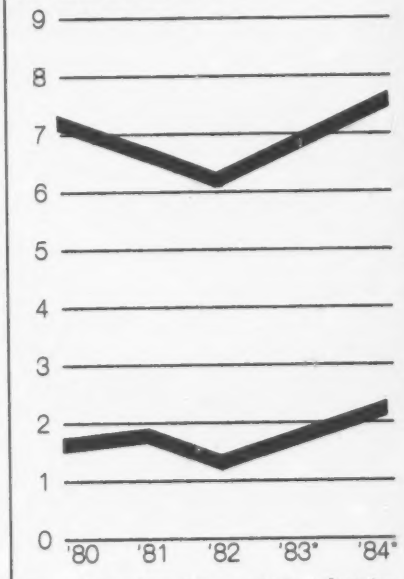
Severe weather conditions over many parts of the U.S., even before winter began officially, promised to supply something the lead smelters have been seeking for three years: a coup de grace to all those automobile storage batteries that have been nursed too long by too many clement winters.

Nickel producers are looking for a 9 pct gain in non-communist world nickel consumption next year and fighting to hold the share taken by Russo-Cuban material to a minimum. Consumption last year was up about 12.8 pct to the widely forecast 1.1 billion lbs. and the 1984 projection would raise this to 1.2 billion lbs.

Aluminum industry observers foresee a gain of 10 pct in shipments this year, which would put the industry over its record. . . .

Nonferrous Metals, Shipments

Millions of Short Tons



Source: American Bureau of Metal Statistics, Aluminum Assn.
*/A estimate

AUTOMOTIVE

Americans in 1984 likely will buy 7.9 million cars built by domestic automakers—an increase of 1 million units over the 6.9 million sold in 1983. Sales of imported cars likely will rise from 2.3 million units in 1983 to 2.5 million in 1984.

The Big 3 will make big profits in 1983 and bigger profits in 1984.

Renault executives expect American Motors to make a small profit in 1984.

Volkswagen of America became profitable this year and should continue that next year. This is due more to the healthy sales of the Porsche and Audi models than Volkswagen's own models.

Automakers raised car prices by about 2 pct for the 1984 model year and likely will raise prices 2 or 3 pct in the fall of 1984 for the 1985 model year.

"Prices will continue to inch up while the economy remains fragile," said the sales analyst for one automaker. "In 1984, the price of the $6,000 small cars likely will rise by about $100, or 1.5 pct, and the price of the $10,000 large cars by $500, or 5 pct."

Car prices in 1983 rose by 3 pct, but the average transaction rose by 7 pct. That's because customers are buying more options—and more expensive options, such as cruise control and electronic displays.

"The move toward larger and more expensive cars," said another auto analyst, "will continue as buyers' income expectations improve with the economic recovery."

As large cars continue their fast sales rates, dealers' inventories of them will continue to be low. 1983 ended with dealer inventories of 1.3 million cars, a 57-day supply; automakers consider a 60-day supply just right.

Many of the plants building large cars already are running at capacity. Many autoworkers are working overtime. By spring of 1984, General Motors will have called back 90,000 employees to work since January 1983.

The present labor contracts at General Motors and Ford expire Sept. 14, 1984. The UAW will ask for more callbacks of workers and less overtime.

A host of good signs favor sales of 7.9 million U.S. cars in 1984: lower interest rates, lower unemployment, higher disposable income, new models, stable gas prices and an improving economy. A dramatic jump in the prime, say automakers, could kill the upturn in car sales.

Automakers disagree how long the upturn in sales will last. One Big 3 chairman, a perennial optimist, said the economy has entered a "robust recovery. We could have an expanding economy for the next five years if Congress and the (Reagan) Administration trim the national debt and keep interest rates down."

The analyst at another Big 3 automaker is much less sanguine. "The last recovery in auto sales," he said, "began from the low point in sales in 1974 and continued through 1979. Then sales dropped like a rock until we hit bottom in the fourth quarter of 1981. Since then sales have improved.

"I expect the present upturn, like the last upturn, to last four or five years—from the fourth quarter of 1981 until 1985 or 1986. Then sales will drop off again. However, they won't drop off as much as they did in 1980-82, because the rise in sales in 1983-85 won't be as great as in 1977-78.

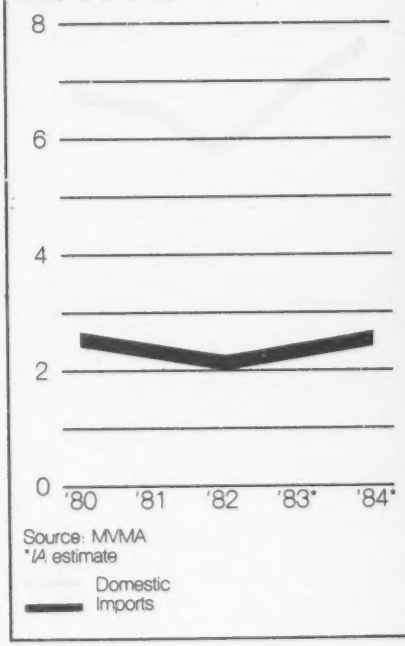
"The present rebound doesn't have the buoyancy that the recovery of 1977-78 did. We're coming off such a low level of sales from 1982."

The analyst predicted that sales in 1985 will be ±4 pct above or below sales in 1984. Other analysts agree that total sales in 1985 probably won't exceed those in 1984 by more than 5 pct, or 500,000 vehicles. If total sales in 1984 reach 10.4 million, sales in 1985 could reach 10.9 million.

'I expect the present upturn, like the last upturn, to last four or five years—from the fourth quarter of 1981 until 1985 or 1986.'

Automotive, Sales

Millions of Units



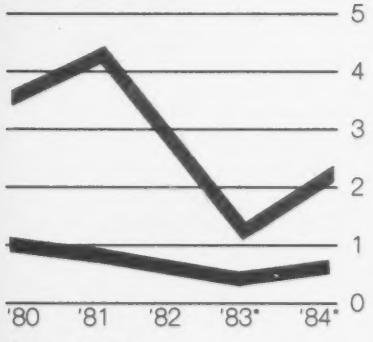
Source: MVMA
*IA estimate

Domestic
Imports

MACHINE TOOLS, FLUID POWER

The industry worldwide expects the capital goods surge to begin in 1984. . . .

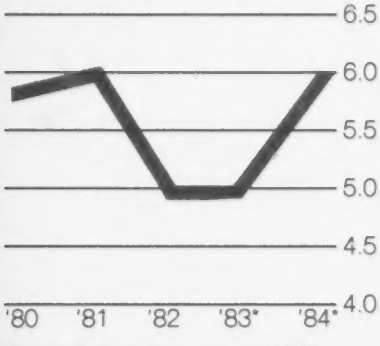
Machine Tools, Net New Orders
Billions of Dollars



Source: NMTBA
*IA estimate

Metal Cutting
Metal Forming

Fluid Power, Shipments
Billions of Dollars



Source: Dept. of Commerce and NFPA
*IA estimate

MACHINE TOOLS—Industry members are waiting for good news, but some experts believe they may remain waiting for perhaps half or more of 1984.

"It's always the last industry to recover," said an analyst.

Some leading industry executives have all but written off the first half of 1984. "We don't expect a significant increase in sales until very late in 1984, but the way the economy is shaping up now we could be proven wonderfully wrong," said one source.

"They may see their return to economic health early in 1985," said an economist.

Many are concerned with another issue that may change everything. That issue will be decided, one way or another in March. That's when President Reagan must either accept or reject the Department of Commerce's recommendation on the machine tool industry's Section 232 petition on imports.

The industry worldwide expects the capital goods surge to begin in 1984 and sees machine tools playing a key role in that rebound.

In the larger FMS (Flexible Manufacturing Systems) area, several U.S. tool builders in that market believe they can more than hold their own against foreign producers from Europe as well as Japan. And, if the automotive world tilts toward FMS, that business would become tremendous.

Other machine tool companies, makers of stand-alone machines, for example, are more than worried. "We cannot compete on price with Japan," said one. "Without Federal import quotas, we will not remain in the business."

Not all producers are so negative. Said one: "When business gets better, it will get better for all of us. All this talk about the end of the world if we don't get 232 is nonsense. Some of us will survive. We have so far. Some won't. But the machine tool industry is here to stay, in one form or another," he added.

FLUID POWER—The industry expects a strong 20 pct gain in 1984. Despite relatively conservative forecasts from some key markets, executives in both the hydraulics and pneumatics markets are feeling a lot better about 1984 than they did at the beginning of 1983.

A swing of that magnitude isn't that surprising to fluid power historians, who point out that the industry in the past has gone through two year lulls, but then snaps back sharply enough that it has a 15 pct growth rate average for the full decade.

One big producer argues that a 20 pct forecast for fluid power is too low and said gains would more nearly approach 28 to 30 pct.

Pneumatic orders have been more stable in the past year than hydraulic, but both slipped sharply, and both were beginning to show signs of a recovery as early as last May. This has continued, and hydraulic orders by September were able to show a 72 pct gain over the year ago period.

Manufacturing rates for fluid power makers rose in some plants during the first half of 1983. At year-end, production increases were continuing as the industry planned for a good year-long upswing in 1984, beyond the seasonal gains it usually sees in the first and second quarters of each year. Since the normal sales peak in any year comes in the second quarter and most manufacturers reduced inventory during the first part of 1983 and all of 1982, the manufacturing rate has to swing back a little more than the sales rate for producers who are anxious to keep deliveries fast and to retain market share.

At a proposed $6 billion 1984 sales level, and that's conservative, the industry would be matching its best past dollar year. With the cost cutting programs that were inaugurated during 1981 and 1982 and continued in 1983, the industry should show a better net gain than the 20 pct sales forecast would suggest.

COMPUTERS, INSTRUMENTS & CONTROLS

COMPUTERS—The continuing growth of the economy is one reason why computer shipments will increase this year.

However, even if the economy slumped in 1984, computer sales would remain strong. The desire for computer equipment seems to be immune to recessions.

During 1983, computer shipments totalled $41 billion, about 15 pct above the 1982 figure of $35.7 billion. Experts at the Department of Commerce believe this industry will grow 18 pct through 1984. Total shipments for 1984 are projected at $48 billion.

Although many types of equipment sold well in 1983, the item attracting the most interest was the personal computer designed for business use. In 1984, interest in computers by businessmen should continue to grow. And with the introduction of the PCjr by IBM in early 1984, some of that interest should carry over into the home market.

Computer sales in 1984 also will be helped by growing demands from overseas. Export markets have been in the doldrums for some time. In 1982, exports rose only 5 pct. In 1983, that figure was 15 pct. Before the worldwide recession, export totals increased at rates approaching 40 pct a year. Export sales in 1984 will creep above 20 pct, although the European market will begin to show some slow improvement in market performance.

In addition, foreign companies are beginning to take advantage of the immense U.S. craving for computers and computer equipment. "Nineteen eighty-two was the first erosion of the U.S. trade surplus in computer equipment," reported a U.S. government official. "This erosion has been due primarily to the Japanese, but has been helped along by U.S. firms turning to overseas manufacturers. To remain price competitive, American companies are farming out their manufacturing operations to overseas firms."

INSTRUMENTS—Makers of instruments and controls were buoyed only slightly by the upswing of the economy in 1983. All told, the industry only grew by several percentage points during the year. Figures for 1984 are expected to be slightly better. Forecasters see an increase of industry shipments in 1984 of under 6 pct in current dollars.

The industry should grow slowly in 1984 because spending for capital goods (other than computer equipment) will remain sluggish. High interest rates will continue to discourage investment in plant equipment. Manufacturers of process controls and industrial controls had a bad year in 1983 and the best thing about the first quarter of 1984 probably will be that business will not be declining. Business should pick up gradually throughout 1984 as old markets begin to come back.

As the economy gathers steam in 1984, capital spending will increase by about 5 pct. The instrument and controls industry will experience a corresponding pickup.

Capital spending has lagged behind recent recovery efforts. High interest rates and the severity of the recent recession are blamed for this slow pace in plant and equipment investment by the manufacturing community.

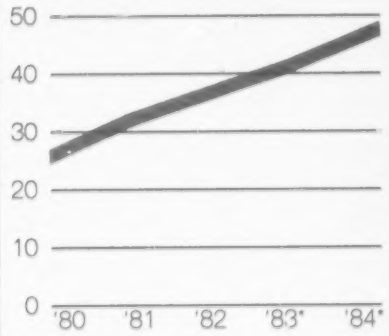
Another reason for the expected slow growth in 1984 is the continuing slump of overseas markets. Instrument manufacturers ship nearly 30 pct of their products out of the U.S. Third World nations, like the Arab countries, have been purchasing few controls for their industries.

Experts see sluggish growth in European markets in 1984, further slowing sales growth for the instrument makers.

Not all segments of the industry are depressed. Instruments that are destined for the electronics industry are in high demand now and will be in even greater demand in 1984 as the semiconductor and computer industry improves on its impressive 1983 showing.

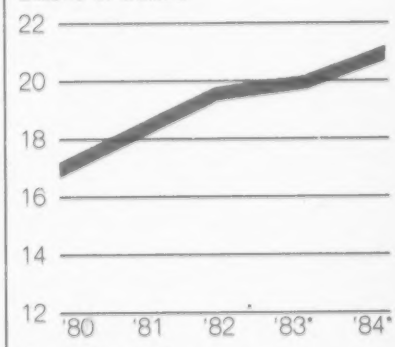
. . . even if the economy, slumped in 1984, computer sales would remain strong.

Computers, Shipments
Millions of Dollars



Source: Dept. of Commerce
*IA estimate

Instruments & Controls, Shipments
Billions of Dollars

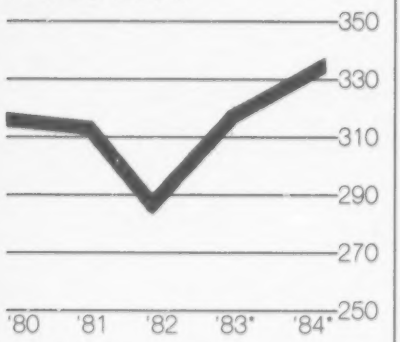


Source: Dept. of Commerce
*IA estimate

INDUSTRIAL COATINGS, PLASTICS

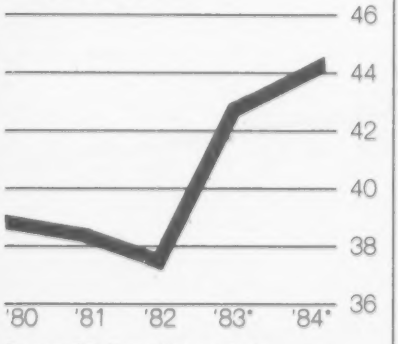
'The big growth in coil coatings will be in the appliance industry.'

Industrial Coatings, Shipments
Millions of Gallons



Source: Dept. of Commerce
*IA estimate

Plastic Resins, Sales & Captive Use
Billions of Lbs



Source: SPI Committee on Resin Statistics, compiled by Ernst & Whinney
*IA estimate

INDUSTRIAL COATINGS—Shipments of industrial coatings to original equipment manufacturers (OEMs) likely will increase from about 320 million gallons in 1983 to 335 million gallons in 1984. That 5 pct increase in shipments doubles the traditional 2 pct annual growth of the product-coatings industry.

The upturn in the automotive and construction industries will account for many of the additional gallons shipped. Shipments to the big industrial-maintenance market should grow by 8 pct; and to the big packaging and medium-size marine markets by 3 or 4 pct. Shipments of coatings to makers of aluminum extrusions, office equipment, and business machines, which are smaller markets, should grow by wider margins: 10 to 15 pct.

Appliances are another big market. Here the coil-coating industry is scoring major gains.

"The big growth in coil coatings," said the vice president of one broad-based Midwestern coatings company, "will be in the appliance industry. 1984 probably will be the gear-up year leading to major growth in 1985-6. I expect shipments of coil coatings to appliance makers to increase by 10 pct in 1984 and by a lot more in 1985-6."

Coil coatings account for 10 to 15 pct of the total industrial-coatings industry. (If customers don't buy precoated materials, they dip or spray their products with coatings in their own plants.)

Companies are using more sophisticated coatings to maintain their facilities, said another vice president: "They're moving away from the alkyds and the vinyls and toward epoxies and urethanes."

The packaging industry is moving rapidly away from oil-solvent to water-reducible coatings. "Ninety pct of the coatings on beverage cans," said the vice president, "are water-reduxible. Food cans are starting to go that way too."

PLASTICS—This past year was a banner year for plastics. As other industries stumbled along, plastics shot up by 15.6 pct in production over 1982 and by 15 pct in sales and captive use.

"One of the great things we have to talk about," said a leading spokesman for The Society of the Plastics Industry, Inc. (SPI), New York, "is the fact that the increases for 1983 totals will exceed that 14 pct prediction which seemed so implausible when it was made 12 months ago."

The final estimates for the plastics industry were based on data received by SPI through September of last year and projected through the end of the year.

The biggest increase among the more popular plastics was registered by polypropylene. Known as one of the more active competitors of metals, polypropylene's production increased by 26.5 pct over 1982 or a total of 4.4 billion lbs. Sales and captive use were also at 4.4 billion lbs, up 21.4 pct from 1982.

Epoxy resins, another plastic used in the manufacturing industry, increased in sales and captive use by only 3.4 pct, although production rose 11.5 pct.

A strong year was recorded by phenolic and other tar acid resins, with a 22.8 pct increase in sales and captive use and a 24.1 pct jump in production.

How about 1984? The SPI is forecasting a 45.1 billion lb year for plastics resins, or an increase of 6.7 pct over 1983.

The growth in the use of polypropylene is expected to settle down to a level of a more realistic rate of growth this year. Its growth is projected at 8 pct. ABS and other styrenics are expected to increase to 7 pct, going to 1.2 billion lbs. In the thermosets, polyesters are projected to post an increase of 10.5 pct with the further expected recovery in autos, boats, construction, appliances and additional consumer goods expected.

CONSTRUCTION, FARM EQUIPMENT

CONSTRUCTION EQUIPMENT—Buoyed by steady gains in its lighter equipment lines, construction equipment makers are now looking for substantial gains in 1984.

The 1984 forecast figure of $4.8 billion (which represents a selected part of the total market) is up about 15 pct.

This is conservative by many standards. A number of companies are talking of dollar gains of 20 pct in 1984, and a forecast by the Construction Industry Manufacturers Assn. (CIMA) members points to about a 22 pct gain in the numbers of units that will be marketed during 1984.

There's no doubt that 1984 is beginning with significant improvement. Highway equipment was beginning to move up in the first quarter of 1983, as *Iron Age* pointed out in its quarterly forecast at that time. Since then, as one source pointed out, "It's been almost a steady gain—even if it was at a slow rate—for most of the year."

The problem was that unit sales numbers were advancing at a better rate than dollar sales were climbing. The price disasters of latter 1982 didn't straighten themselves out in 1983. Sacrifice sales, especially of a lot of heavy equipment that packs big dollars in its list prices, were almost a universal rule right through 1983. The price slashes were deep, and deep enough to offset any possible gains in dollar volume and an increase in sales performance.

The sales had one important effect. They cleaned out a lot of inventory that was a millstone around distributor-dealer necks.

One good sign about 1984 is that dealer prices began firming in the fourth quarter of 1983. This indicates that the dealer inventory problem has been whipped into better shape.

This year will start at a good pace, probably peak in the second quarter and then manufacturing rates will drop seasonally in the second half.

FARM EQUIPMENT—Tractor sales could post a 15 pct gain in 1984.

Farm machinery sales gains have been mainly in light equipment and some producers of pull-behind tillage or forage equipment were reporting sales gains in the first half of 1983. But that's not enough to push this big industry out of the trough it's been in for the past two years.

Through the first nine months of 1983, combines were off 11 pct, forage harvesters off 17 pct, and some other forage equipment was off as much as 24.5 pct.

Like the construction machinery industry, farm equipment makers have been plagued by a slow export market and a continuing influx of foreign built machinery. This condition, along with continuing heavy stocks of the big ticket machines has confined the forecast for a 1984 gain pretty much to the light equipment machinery lines. So it doesn't give the farm machine builder a chance to step up his cash flow as much as a 15 pct tractor unit gain might suggest.

Reports in late November suggested that even some pessimists were surprised at the amount of new sales they were getting at the last minute, but weren't impressed enough to begin changing their plans for 1984.

The best news in months came when Deere & Co., the biggest U.S. producer, announced a $58 million net return in the fourth quarter that offset earlier losses and produced a gain of $23.3 million for the fiscal year ending last September.

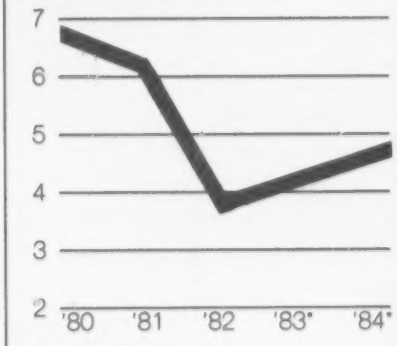
The problem: Deere's gain came in its industrial equipment sales, while farm equipment operations were cut back 23 pct to reduce field inventories. Sales declined in farm equipment by 18 pct for the year.

Deere has indicated that, even with the production cuts of 1983, it will have to continue to cut back production during 1984.

. . . dealer prices began firming in the fourth quarter of 1983.

Construction Equipment, Shipments

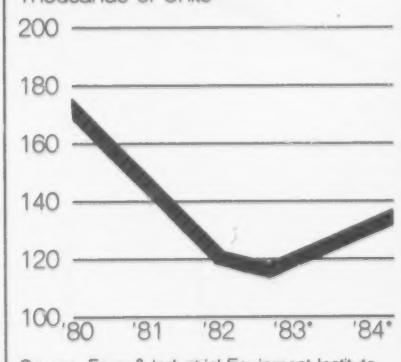
Billions of Dollars



Source: Dept. of Commerce
*IA estimate

Farm Equipment, Wheeled Tractor Sales

Thousands of Units



Source: Farm & Industrial Equipment Institute
*IA estimate

OIL COUNTRY, MINING EQUIPMENT

OIL COUNTRY—The tubular goods industry is beginning to see signs of a pickup, but the recovery in the industry is expected to be a cautious one through 1984.

Steadily improving oil and gas drilling activity throughout 1983 helped spur an increase in domestic oil country tubular goods (OCTG) business. A similar slow but steady improvement is foreseen for 1984, especially in drilling of shallow oil wells. But the industry is not yet poised for the upsurge it needs to match the bullish figures of the late 1970s and early 1980s.

Industry executives are keeping their fingers crossed that the national economic recovery continues through the year and that crude oil prices stabilize or increase. That would help spur drilling activity.

Drill utilization rates crept up throughout most of 1983. By December there were 2,704 rigs in operation after a low of 1,807 in April. The average for 1983 was expected to be 2,027. Projections for 1984 called for an average increase of about 6.1 pct, still below the rig levels of 1982 when an average of 3,105 were operating.

The number of oil wells being drilled is expected to approach 67,000 in 1984, up slightly from 1983's figure of 63,700. However, if the trend continues throughout the year it could begin to eat into existing inventories.

One hopeful sign for the industry is that major oil companies were reporting improved cash flow positions—some by as much as 10 to 12 pct—by the end of the year. As a result, drilling budgets for most are expected to increase in 1984.

But what the OCTG industry really needs to boost production rates is a dramatic increase in natural gas drilling. Nevertheless, few experts envision that happening in 1984. "Market forces are in control there and we don't see any dramatic improvement in 1984," one industry executive lamented.

MINING EQUIPMENT—Mining equipment manufacturers are trying to forget 1983. It was one of the worst years in the history of the industry and left some companies in the business practically moribund.

As one senior mining executive said, "I'm retiring at the end of 1984 and I don't know whether they'll replace me or not." This is a fairly typical statement.

There have been some rather spectacular new products introduced recently in the coal mining industry, and when the "times seem right," it can be expected that those introducing such equipment will be the suppliers. The question is, as it has been for several years, will the "times be right" in 1984?

No company polled by *Iron Age* predicted a 1984 worse than 1983. Few, however, suggested a restoration of King Coal. "All the facts imply a restoration," said one industry observer.

The coal mining industry remains, however, a doubt-filled collection of companies.

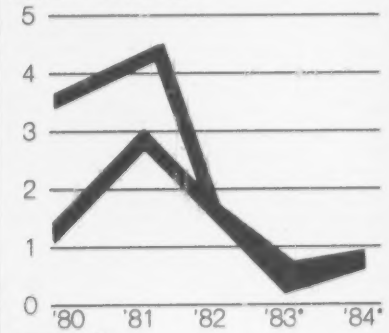
Such doubt has turned an industry that is normally concerned with long-range planning into an industry that now thinks quarterly. "Until there is some kind of consensus in the country about the good sense of clean coal, you won't see a major across-the-board modernization program in the industry," said one industry source.

Such an analysis leaves equipment makers less than thrilled about 1984. "I see the year as better, quite a bit better, than 1983, but by perhaps only 15 pct in terms of our sales," said one supplier. A 15 pct increase in that industry is a 15 pct increase above disaster.

"Our position about '84," said a supplier of iron ore mining equipment, "is that steel production will climb perhaps dramatically, but expenditures for new mining equipment will not, except for maintenance and replacement items."

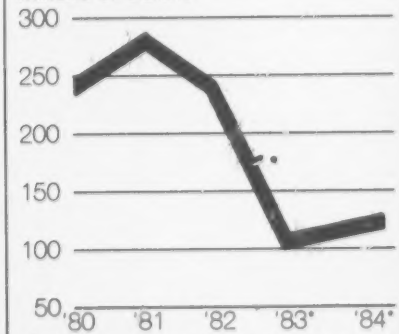
The OCTG industry really needs . . . a dramatic increase in natural gas drilling.

Tubular Goods, Shipments
Millions of Net Tons



Source: AISI
*IA estimate
Domestic
Imports

Mining Equipment, Sales
Millions of Dollars

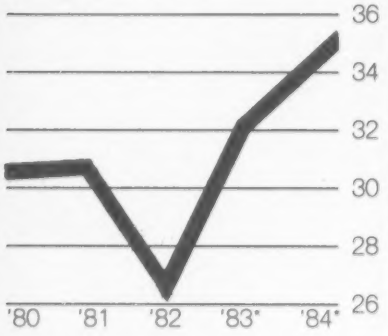


Total U.S. and export figures, based on present dollars; includes continuous miners, mobile loading machines, shuttle cars and cutting machines.
Source: Mining Equipment Manufacturers
*IA estimate

APPLIANCES, MATERIAL HANDLING

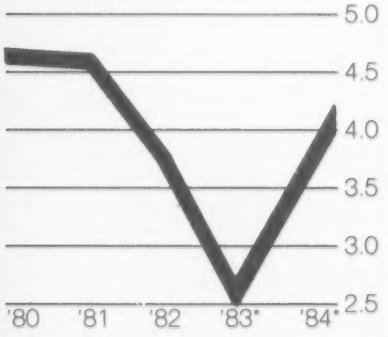
The appliance industry rode the coattails of the housing boom through 1983.

Appliances, Shipments
Millions of Units



Source: Association of Home Appliance Manufacturers
*IA estimate

Material Handling, Shipments,
Billions of Dollars



Source: Material Handling Institute
*IA estimate

APPLIANCES—The appliance industry experienced a strong 1983 and that strength could continue through most of 1984.

Sales of the nine major appliances (room air conditioners, dehumidifiers, dishwashers, disposers, compactors, refrigerator/freezers, electric ranges, microwave ovens, and laundry appliances) topped 31 million units last year, an increase of about 18 pct over 1982 figures of 26.7 million.

Growth through 1984 will remain robust, with shipments reaching 35 million. The 1984 figure represents a 12 pct increase over 1983 totals.

The appliance industry rode the coat tails of the housing boom through 1983. Growth of that market will slow down in 1984, but a moderate slowing from a good 1983 means shipments will level off a bit at high levels.

In 1983, housing completions rose some 40 pct above 1982 levels. Completions in 1984 are expected to grow 20 pct over 1983. Reportedly, three major appliances go into each new housing unit.

Added to the growth in housing market has been recent substantial increases in consumer spending. Consumers, with a growing confidence in the economy, have been spending more money. In addition, real disposable income in recent months has increased faster than at any other time in the past two years.

Another reason that more appliances will be sold this year, say several appliance manufacturers, is the average age of the current stock of appliances in the nation's homes. A large number of appliances were purchased by consumers 10, 11 or 12 years ago. On average, major appliances in the home market are replaced after 12 to 15 years.

"From 1962 to 1973, 288 million appliances were shipped. These products are now 10 to 20 years old and are ripe for replacement," said one industry spokesman.

MATERIAL HANDLING—"We think it's breaking loose now, and as this year moves along, we expect a continuing increase in orders," said a major material handling company president.

Others reported that inquiry levels for their products have been increasing steadily since the end of 1983's third quarter and that inquiries cover the entire spectrum of material handling equipment and accessories.

"For a while there in 1982 and early 1983," said an industrial truck specialist, "I thought we were never going to come back to normal. Now, I can see it developing into something sizeable by mid-year."

Most material handling companies expect to participate in any capital goods surge.

Such a surge would come on top of already moderate demand for large consumer-oriented warehousing for the food, beverage and automotive industries. "I would expect that in the larger systems area you'll see some capacity problems. These large systems are always custom and always lengthy in terms of specs. You don't automate a warehouse off-the-shelf," explained a leading manufacturer.

While one end of the business may find joy in capacity limits late in the year, another end is finding perennial misery from imports. Industrial truck manufacturers have been getting used to Japan. "They can come on strong," said one U.S. lift truck manufacturer, "particularly in price."

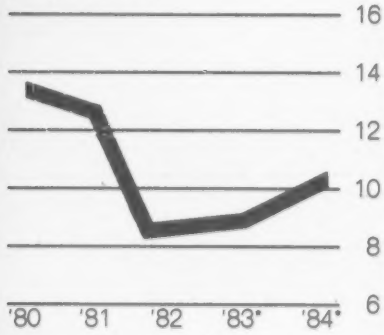
Other areas of the industry report good signs. Rack manufacturers reflect the hopes of large systems makers and expect 1984 to be up, particularly in the second half.

In general, companies in the industry expect 1984 to develop into the best year they've had in the last five. "I wouldn't say we see 1984 as a boom year, but it will be very good. We predict a 20 pct increase in business over 1983," said one executive.

CASTINGS, FORGINGS

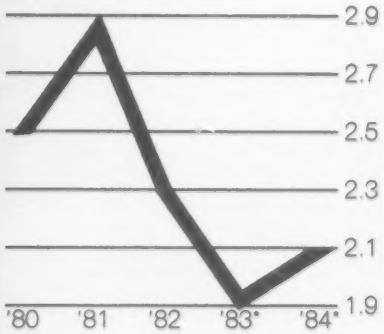
Some automotive suppliers were near capacity in the second quarter of 1983.

Ferrous Castings, Shipments
Millions of Tons



Source: Dept. of Commerce, Iron Castings Society
*IA estimate

Impression Die Forgings, Shipments
Billions of Dollars



Source: Forging Industry Assn.
*IA estimate

CASTINGS—The foundry industry is poised for its best year since 1981.

In that year, the industry shipped about 12.4 million tons of ferrous castings. It was supplying a lot of metal for equipment that had been ordered back in 1980. Like the heavy equipment industries it supplies with castings, it was living on an order backlog for domestic and export orders.

For 1984, the forecast is for a 12 pct gain over current orders. New orders, were showing a recovery at some foundries in June.

As early as first quarter of 1983, there was a pickup—if a mild one—in foundry equipment ordering as reported by the foundries. The volume wasn't enough to set the foundry equipment shops on fire, but they could see that the two-year drop in equipment orders was finally ending.

At about 10 million tons of shipments of gray iron castings, the foundry industry will be adding an improved 1984 to a solid order pickup that was widely felt during the third quarter of 1983 and was rising in the fourth quarter.

Some automotive suppliers were near capacity in the second quarter of 1983.

Auto business has remained strong, even with the reported leveling in auto sales in recent weeks. But on top of those gains in auto castings have been gains in new business coming from the capital goods sector. The best known is in trucks. Light trucks were on an upward track right from the start, and heavy trucks began to pick up in 1983 and haven't slowed down at all. They could add another 15 pct to their current level of demand during 1984.

There has also been a mild recovery in demand from construction, construction machinery, and agricultural markets. Diesel engines didn't set the consumer auto market on fire, but they are doing well in trucks and this is seen as another strong 1984 market.

FORGINGS—The forging industry had a terrible year in 1983. This year promises to be better, but not by much.

Custom impression die forging shipments for 1983 slumped to $1.9 billion, down from $2.3 billion in 1982 and 2.9 billion in 1981.

For 1984, shipments are projected to reach $2.1 billion, with orders reaching $2.0 billion.

As bad a year as 1983 was, it did have its bright spot: the automobile industry. Forging shops tied closely to the automotive market had increasing work loads, especially through the second half of the year. The trouble is in recent years automobile forgings have represented but a small part (about 6 pct) of the total impression die forging market. The smaller cars of today just do not use the amount of forgings they once did.

The forging industry's biggest market is air frames for commercial and military aircraft. Entering 1984, this market continues to sputter. Two other markets—off-highway and agricultural equipment—continue to be slow.

Some business in 1984 could come from the oil fields. "There are some early and vague signals from the pertrochemical industry which suggest that order activity will be on the increase early next year," reported an industry spokesman.

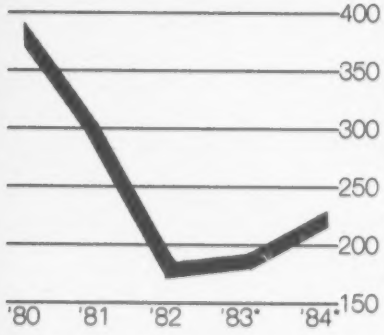
As depressing as the impression die industry was in 1983, the open die forging industry was worse. Custom open die forging shipments dropped 36 pct in 1983 to $490 million. Just two years earlier in 1981, shipments had reached $1.1 billion. Shipments for 1984 are projected to rise slightly to $520 million.

Major problems continuing into the new year include the continuing slump in aircraft production, lack of activity in the energy industries, high interest rates prohibiting capital equipment purchases, and the mounting problem of foreign forgings entering this country.

AIRCRAFT, ENGINES & TURBINES

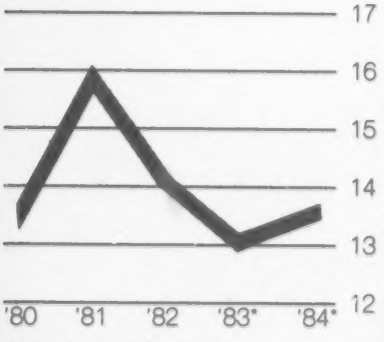
A sustained recovery (in aircraft sales) is unlikely for at least another year.

Commercial Airplane Orders
No. of Planes



Source: Airbus, Boeing, McDonnell-Douglas
*IA estimate

Engines and Turbines, Shipments
Billions of Dollars



Source: Dept. of Commerce
*IA estimate

AIRCRAFT—The airframe industry was buoyed in 1983 by increasing domestic passenger traffic and higher fares that allowed some major U.S. airline carriers to boost traffic and position themselves for the eventual ordering of new, fuel-efficient jets.

But the uncertainty of the continued freewheeling competitive fray and the glut of used aircraft cloud the airframe manufacturing picture in 1984. A sustained recovery is not anticipated for at least another year.

Orders in 1984 are likely to be up over those of 1983, a year that saw a slight improvement over the severely recessed sales figures of 1982. But the prolonged recession in the industry has taken its toll. McDonnell Douglas has backed off the civilian side of the industry, scrapping grandiose plans to develop a family of jets and concentrating solely on marketing its popular, efficient MD-80 (christened the DC-9 Super 80). Seattle-based Boeing continues to concentrate on marketing its new 757 and 767 lines and appears to be making some inroads with slowly recovering U.S. airline carriers. Only Airbus, the European-based airframe consortium, promises something new in 1984: A likely decision to move ahead on the new-technology A-320, a 150-seat aircraft aimed to fill a gap in the market expected to appear in the late 1980s and early 1990s.

Any optimism that exists in the industry is centered on the prospects for a longer-term recovery beginning in 1985 and extending into the next decade. The short-term outlook for 1984 is relatively flat.

The manufacturers are concentrating on military programs to pull them through the lean times. Profits for McDonnell Douglas and Boeing increased in the second half of 1983, thanks mainly to operating improvements in aerospace lines, government projects, higher interest income and lower interest expenses.

ENGINES & TURBINES—Conservatism still shrouds the wide-ranging engine and turbine industries. Despite signs of a slow but steady improvement that began in the latter half of 1983 and should continue into 1984. There is little expectation that the new year will bring any sort of dramatic turnaround. However, many industry officials are optimistic that the corner has been turned, the industries have reached their low point and if the economic improvement continues, the groundwork could be laid for a more dramatic and sustained recovery in later years.

Manufacturers of engines for utilities and power plants look for a reversal of the bleak statistics of the last two years when new domestic orders were virtually nonexistant.

"The next year looks kind of interesting," one industry economic analyst contended. "We foresee several new orders industry-wide, which will be an infinite improvement over the last few years. The utilities are looking out seven or nine years and they are beginning to recognize that they are going to start needing more capacity. We see a gradual upturn in orders that should lead a full recovery of the market within the next five years."

However, in the short term new domestic sales should continue to lag well behind the rapid pace of the early and mid 1970s. Most of the improvement will be felt in coal power plant construction; the nuclear end of the industry has been largely dormant.

Many industry executives questioned also contend that overseas business has been hurt by the continued strength of the U.S. dollar and by competition from financing packages arranged with the help of foreign governments in new energy projects.

There is some optimism that the end of the recession and rising consumer confidence will eat into the overcapacity that the existed in the domestic energy markets for most of 1983.

WELDING, HEAT TREATING

WELDING—The welding industry struggled through 1983 in fair shape, better than most industries in fact. One executive with a major welding manufacturer looks at 1984 with a certain amount of cautious optimism. "I would like to think that there will be a slight upturn in business toward the end of the first quarter or the beginning of the second quarter," he said.

All in all, 1983 was a marginal year. The main cause has to be attributed to the very poor year registered by the big companies. Fortunately, the smaller companies poured on some steam and picked up some of the slack. The bigger fabricators, in many instances, have been taking it on the chin.

The manufacturers of earth-moving equipment, who are traditionally the biggest users of welding, have not been fairing too well, especially overseas, and this has hurt welding production worldwide.

Welding distributors indicate that lead times are beginning to stretch out, a sign of strengthening business demand.

"Our orders are steady but still have a long way to go before they are healthy," comments one distributor.

The National Welding Supply Association (NWSA), Philadelphia, reported that September 1983 was the best month for distributor business since the boom month of October 1981. However, 1981 was the best year, certainly in terms of dollars. In terms of physical volume, 1979 was the banner year.

"Welding has not participated in the recovery," noted a spokesman for one of the major welding manufacturers, "mainly because capital goods has not responded."

As far as plate fabrication is concerned, though, one authority doesn't even see any contracts being let until the second quarter of 1984 at the earliest. "If that's the case," he added, "the welding suppliers will not hear the news until the third quarter."

HEAT TREATING—Both heat treating, and industrial heating equipment, appear to be poised for a stronger 1984. Heat treating, particularly, had mixed fortunes in 1983.

In the Midwest auto producing areas, the dramatic upturn has colored forecasts for 1984 accordingly. Some companies were up 50 to 70 pct as they approached the end of 1983.

That would make the very moderate 15 pct gain forecast appear conservative.

The East Coast, for example, held relatively better than the Midwest in the 1982 and 1981 period, when automotive was plumbing the depths back in Michigan, Ohio, Indiana and Illinois.. Some Eastern sources are a little more inclined to accept the 15 pct forecast this year.

The Sun Belt was another area that came late to the economic malaise, and is still in an earlier stage of the recovery from it. The softest spot still is the Southwest, and in particular the petrochemical and energy producing industries in that area. Even though drill rig activity has been up and inventories of some types of oil country goods have been thinned out, heat treaters are still not seeing much sign of an advance in that area.

The Southeast has been somewhat more fortunate. It did take a bruising in latter 1982 and early 1983. But industry sources estimate that about midyear the area began to recover.

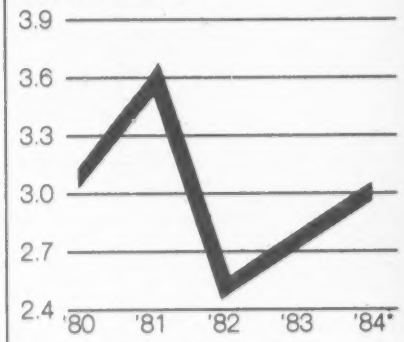
The Northeast, as noted earlier, held up better and is posting moderate gains.

The states, in the upper Midwest, dependent on the auto market, are continuing very strong and running on a strong 1984 forecast. This appears, on a volume gain basis, to be about the strongest heat treat area in the U.S.

The West Coast, helped by defense and electronics work, has had very stable and rising performance from those two markets. It is expected to do well in 1984.

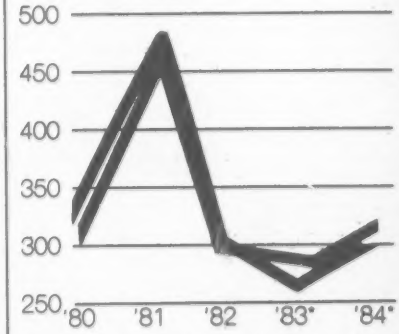
Welding distributors indicate that lead times are beginning to stretch out.

Welding, Shipments
Billions of Dollars



Source: National Welding Supply Assn.
*IA estimate

Heat Treatment
Millions of Dollars

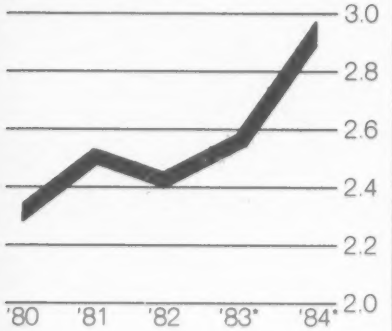


Source: Industrial Heating Equipment Assn., Metal Treating Institute
*IA estimate
Billings of Commercial Heat Treaters
Heat Processing Equipment Orders

SCREW MACHINE PRODUCTS, FASTENERS

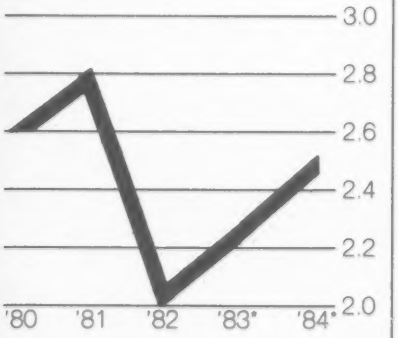
The screw machine product industry has benefitted from the upswing in auto sales.

Screw Machine Products, Shipments
Billions of Dollars



Source: Dept. of Commerce
*IA estimate

Fasteners, Sales,
Billions of Dollars



Source: Industrial Fasteners Institute
*IA estimate

SCREW MACHINE PRODUCTS—The modest growth the screw machine products industry achieved in 1983 will be followed by more modest growth in 1984.

The industry, which experienced a pickup of from 8 to 11 pct in 1983 shipments should see increases in the same range in 1984. Preliminary government figures peg 1983 growth at 8 pct.

As the economy continues to expand through 1984, the screw machine products industry should expand right along with it.

The screw machine product industry has benefitted from the upswing in auto sales. Nearly one-third of screw machine products are sold to the auto industry. Another plus has been the strong showing of the appliance industry and the marked improvement of the housing market in 1983.

Another significant market for screw machine products is the aircraft industry. However, that market, which was depressed in 1983, will remain that way through 1984. The hope is that increased military business will partially offset the lack of business from commercial plane manufacturers.

Farm and off-highway equipment is another sector that remains depressed, although this market may pick up slightly later this year.

Despite the continuing high interest rates, capital equipment purchases should improve by a few percentage points in 1984. Growth in capital spending means increased sales of machinery containing screw machine products.

Entering 1984, screw machine products manufacturers see a relatively flat first quarter, followed by a strong second quarter. The cycle of growth period followed by a leveling period is expected to continue through much of the year. The biggest fear voiced by manufacturers is that deficit spending by the Federal government will depress the current period of economic growth.

FASTENERS—"The year will start out continuing to reflect the very good business we've been seeing since the midpoint of this year. What we're worried about is the way the year progresses," said one fastener industry source.

Obviously, nobody knows for certain. But if the long-awaited capital goods surge doesn't arrive in mid or late 1984, fastener makers do not expect to register a banner year.

Even with a significant increase in capital goods activity, however, the industry's overriding concern remains. Imports, particularly from Japan, are pouring in and nothing domestic companies have tried has stymied the flow.

The General Accounting Office (GAO) is investigating the way the U.S. Department of Commerce handled the fastener industry's Section 232 petition. Commerce officials recommended against it, and as a result no relief quotas were offered by President Reagan.

The GAO study could lead to any of several recommendations—from direct relief to changes in appropriate laws.

"If the GAO report is as damning as we expect it will be, we'll make mileage out of it," said an industry source.

Meanwhile, the import flood continues. While Japan is the largest exporter to the U.S. with 50 pct of the total, Taiwan second with 14 pct, and Canada third with 9.5 pct. The People's Republic of China is fourth with something around 3 pct, but growing rapidly.

So, when capital spending returns in recent years, American large bolt producers may not find a happy world returning to them.

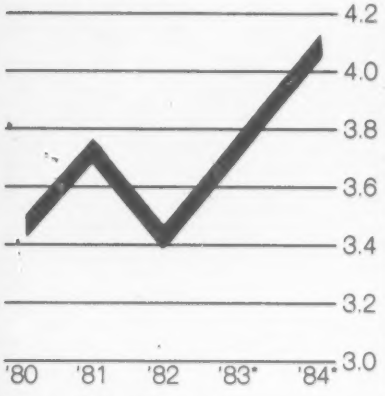
The best guesses, taking all these factors into consideration, seem to suggest an increase this year of 5 to 10 pct in dollars over 1983.

There are optimists, however, even in the fastener industry. One suggests a sweet vengeance of sorts may be in the cards if the worldwide recession turns into a worldwide boom as the decade moves ahead.

BEARINGS, STAMPINGS

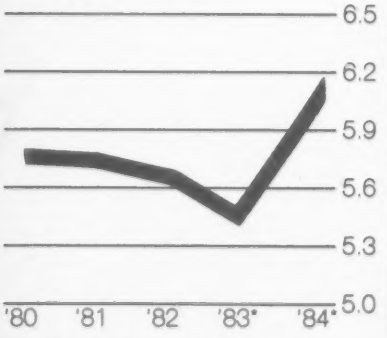
Shipments of antifriction bearings . . . should approach $4.1 billion in 1984.

Antifriction Bearings, Shipments
Billions of Dollars



Source: Dept. of Commerce
*IA estimate

Stampings, Shipments
Millions of Dollars



Based on the average of a control group whose shipments total more than $500 million annually.
Source: American Metal Stamping Assn.
*IA estimate

BEARINGS—The bearings industry, which has suffered from a prolonged slump stretching through 1982 and 1983 is due for a slight upturn in 1984. "I think the industry will grow by 11 or 12 pct next year," said one industry official. Shipments in 1983 of antifriction bearings reached $3.7 billion in 1983 and should approach $4.1 billion in 1984.

The current growth of the economy has been a mixed blessing for the bearings industry. On one hand, the automotive industry is doing well, and since nearly one-third of the bearings industry supports the motor vehicle business in this sector has picked up.

Appliances have also sold well recently, helping the nearly 4 pct of the bearing industry that services refrigeration and heating.

On the other hand, some 6 pct bearing purchases come from the aircraft industry, which remains dead in the water. Other industries that rely heavily on bearings also are hardly breathing: the oil field sector, for example, as well as the farm machinery and construction machinery business. None of these sectors are supposed to set the world on fire in 1984.

This coming year, however, could signal an increase in capital equipment purchases. Since a number of bearings go into industrial machinery and machine tools, any pickup in these areas would be welcome.

Because of the continuing high interest rates, manufacturers are still cautious about capital spending. However, as plant capacity becomes increasingly utilized, manufacturers will begin making enough money to consider new expenditures. At present, most efforts are aimed at getting older equipment up and running again, equipment abandoned during the last recession. Renovating this older equipment is also benefiting bearing manufacturers, because companies need bearings to get the older equipment running again.

STAMPINGS—Indications near year-end 1983 boded well for the stamping industry in 1984. October stamping orders and shipments hit a new three-year high, reaching the highest monthly level since October 1980. Orders jumped 15 pct higher than September 1983 levels and were 55 pct above October 1982 figures.

Thus, earlier predictions that 1983 sales would be 5 to 10 pct higher than 1982 sales came closer to reality.

Still, as a whole, industry sources are guarded about sounding too optimistic and, as one put it, "the real question is how far into the first quarter of 1984 will the industry maintain high levels of activity."

One Eastern stamper says he's confident 1984 business will be at least 12 pct better than in 1983, in terms of physical volume not higher prices.

Along with the improvement in orders and shipments in October, industry backlog inched up, from September, "in stark contrast to the situation a year ago (1982) when the backlog was 29 pct lower," another stamper pointed out.

Another healthy sign: Employment in the stamping industry has been steadily rising, another indication that 1984 " may be the best in years."

Lead times, revealed another industry source, are running as good as ever, between six and eight weeks, and reports of economic recovery and consumer confidence are showing up in auto and appliance sales. In addition, companies expressed their elation about defense contracts as well as the 'solid state' of the computer field.

But things aren't all rosy.

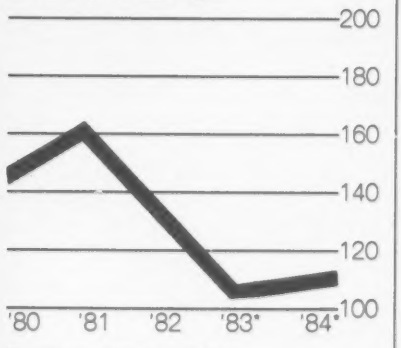
A number of industry spokesmen noted the continuing supply of used machinery and its hindrance to the recovery of the captital goods

This aside, the stamping industry appears to be approaching 1984, as one source puts it, with *modified* great expectations.

GEARS, VALVES

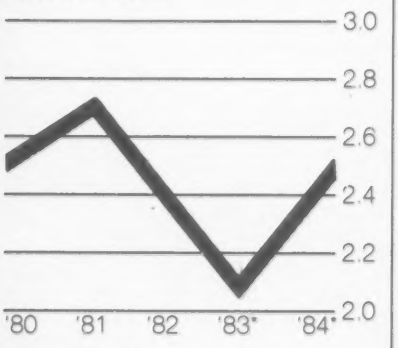
The gear industry's salvation in 1984 will lie in smaller gearboxes.

Gears, Bookings



Based on average monthly bookings, 1977 = 100
Source: American Gear Manufacturers Assn.
*IA estimate

Valves, Shipments
Billions of Dollars



Source: Valve Manufacturers Assn.
*IA estimate

GEARS—Industry spokesmen are keeping that stiff upper lip.

Last year was a major disappointment, so they're predicting a better year in 1984, with a gradual pickup in orders, but nothing spectacular.

Still, as one source told *Iron Age*, the pickup will be across-the-board, and include all product groups.

Meanwhile, 1983 orders may well be off some 30 to 40 pct from the 1982 level, and they're certainly below earlier predictions about 1983.

This industry's sales salvation in 1984 is expected to lie in smaller gearboxes, one source told *Iron Age*. But for the big jobs, "forget it," he added.

Gearmakers aren't hesitant to mention their current overcapacity and their hunger for new business.

Lead times continue to be *off-the-cuff* and, as one expert put it, "Get us the orders, we'll ship it—yesterday."

On the brighter side, December's auto sales increase of more than 21 pct is encouraging news to the gear industry, but unfortunately that is partially offset by lagging activity among the farm equipment, construction, mining and paper/pulp industries.

As far as I'm concerned," pointed out a Midwestern gearmaker who puts out a varied product line, "sales to all these markets are *on hold.*"

But not all gearmakers share his pessimism, particularly about farm equipment sales.

A number of gearmakers voiced concern about the Federal deficit, now at some $200 billion, and were unanimous that interest rates would creep up in 1984 and that the strong dollar would remain so.

But mention the word *imports* and you can count on a verbal blast—a blast aimed at the West Germans, Japan and Taiwan.

To wrap it up: Gear manufacturers are hoping against hope to get out of the blahs in 1984, but they're not putting much money on it.

VALVES—"If only the *Oil Patch* could turn into the *Cabbage Patch*," punned one valve industry source, who added that oil industry oversupply continues to depress his industry. In the last quarter, valvemakers did point out that drilling had resumed somewhat, but they have some definite reservations about the increased activity and its impact on valve orders.

Nevertheless, the valve industry is cautiously optimistic about the new year.

Part of their expectations were revealed in an industry survey that forecast total consumption of control valves and actuators would climb from $2.14 billion in 1980 to $2.79 billion by 1986, with the most dramatic acceleration in this growth getting underway in 1984.

Domestic market growth in the valve industry during this period was forecast to be an increase of some 4.5 pct each year. "Ah, don't we wish," one industry spokesman replied.

As for valve industry markets, chemical process industries should be its dominant customer in 1984 and the AWWA municipal market, which slid in 1982, has been regaining strength, and may even be showing sharp growth by the end of 1984.

Installations of digital and analog control systems, used with microprocessors or computers, will continue to punch up the order books for control valves, which could cause these units to enlarge their share of the automatic market considerably.

Meanwhile, pneumatic diaphgram-spring actuators should hold onto their market share, thanks to their high degree of reliability.

The valve industry continues to keep the wolf from the door through reconditioning and repair work.

In fact, this segment of total valve expenditures has been reported to increase as much as 11 pct per year in recent years.

RAILCARS, SHIPBUILDING

RAILCARS—When you have a situation where there are tens of thousands of railroad freight cars sitting around idle, there's not much incentive to build more of them.

Some executives are saying 1984 will be a better year mainly because things can't get any worse.

According to a statement released by the American Railway Car Institute, Chicago, in November, U.S. railroads placed 736 new and rebuilt freight cars in service in October, compared with 460 in September and 1,037 in October 1982. Deliveries in the first 10 months of the year including 100 rebuilds and 314 estimated totaled 4,512 compared with 17,070 for the same period in 1982.

Orders placed in October came to 642 compared with 416 in September and 884 in October 1982. For the first 10 months of 1983, the American Railway Car Institute stated that 4,908 cars were ordered, including 100 rebuilds, compared with 7,191 in the comparable period of 1982.

The backlog of cars on order and undelivered as of November 1, 1983, was 3,368 compared with 3,756 on October 1 and 5,597 as of November 1, 1982. Average backlog for the year as of November 1983 was 4,105 compared with 9,792 the previous year.

With all said and done, deliveries of rail cars during 1983 reached about 5,000 units. A few years ago, a year of 40,000 deliveries was considered a bad year. But, that was before deregulation (1982) and before the economy in general went into its nosedive.

Those good old years, as recently as 1980, had deliveries of 100,000 rail cars. But, some say that the 100,000 rail car year is a thing of the past.

Still, 1984 will not be all that bad. The American Railway Car Institute is predicting that there will be at least 12,000 cars delivered this year. It will certainly be a far cry from 1980, but it will be an improvement over 1983.

SHIPBUILDING—In the shipbuilding industry, they're saying that the Navy is the only game in town. The dollars are great, make no doubt about it. Congress appropriated $11.4 billion for fiscal year 1984 to get the new fleet going. But, according to one authority, only about one-third of American shipyards will benefit from the windfall.

Commercial shipbuilding is another story entirely. It has been slowly drying up for years. This coming year new construction work will continue to evaporate and ship repair will remain sluggish. There is indeed the possibility that more shipyards will close down.

Where for years the commercial shipbuilding capital of the world was Japan, the situation has begun to change. South Korea and Taiwan have begun to challenge Japan for the number one spot. According to a reliable source, Japan has 46 pct of the market although its share had been 51 pct. South Korea now has 12 pct and its share is growing.

As far as the juicy Navy contracts are concerned, Electric Boat Division of General Dynamics Corp. will have its hands full with a $1.7 billion contract for a Trident submarine and two attack submarines at $1 billion a piece. A third one will be built by Newport News Shipbuilding & Dry Dock Co.

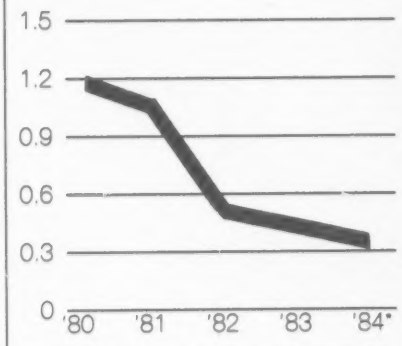
Ingalls Shipbuilding will build the $1.3 billion amphibious assault ship and several AEGIS cruisers. Avondale Shipyards has a contract to fabricate five landing ship dock vessels. Bath Iron Works and Todd Shipyards are also busy with Navy work.

Back to the commercial side, shipbuilding is in a grim state internationally. Only Japan, South Korea and Taiwan are showing any strength.

An over-supply of offshore drill rigs certainly has not helped the industry.

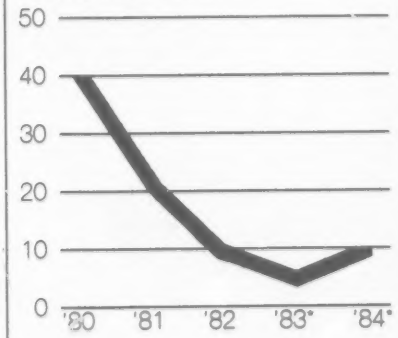
There is indeed the possibility that more shipyards will close down.

Shipbuilding
Millions of Gross Tons



Commercial ships on order or under construction on Dec. 31 of each year, 1,000 gross tons or over
Source: Maritime Administration
*IA estimate

Rail Car Orders
Thousands of Units



Source: American Railway Car Institute
*IA estimate

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METAL PRICES & PRODUCTION DECEMBER 31,1983

World Steel Production

Raw steel, thousands of metric tons

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983*
Argentina	2,205	2,353	2,206	2,410	2,684	2,786	3,199	2,687	2,541	2,900	3,000
Australia	7,699	7,813	7,869	7,794	7,338	7,596	8,119	7,589	7,635	6,400	5,700
Austria	4,238	4,899	4,069	4,476	4,093	4,335	4,917	4,823	4,656	4,300	4,400
Belgium	15,522	16,227	11,582	12,145	11,256	12,601	13,442	12,322	12,283	9,900	9,800
Brazil	7,150	7,515	8,387	9,253	11,253	12,205	13,893	15,309	13,213	13,000	14,200
Bulgaria	2,246	2,188	2,265	2,460	2,589	2,469	2,482	2,567	2,483	2,600	2,500
Canada	13,388	13,623	13,025	13,290	13,631	14,899	16,054	15,901	14,811	11,900	12,000
China*	25,219	21,119	23,903	20,459	23,740	31,780	34,484	37,121	35,600	35,500*	37,000
Czechoslovakia	13,158	13,640	14,324	14,693	15,054	15,294	14,817	14,925	15,270	14,000*	13,500
France	25,270	27,021	21,531	23,227	22,094	22,844	23,360	23,176	21,261	18,400	17,200
W. Germany	49,521	53,232	40,412	42,413	38,984	41,253	46,040	43,838	41,610	35,900	35,200
E. Germany	5,855	6,165	6,480	6,740	6,850	6,976	7,024	7,306	7,467	7,100*	6,600
Hungary	3,332	3,466	3,671	3,652	3,723	3,773	3,907	3,767	3,645	3,800*	3,500
India	6,889	7,068	7,991	9,364	10,009	10,099	10,126	9,514	10,780	11,000	10,400
Italy	20,995	23,804	21,865	23,455	23,335	24,283	24,250	26,501	24,777	12,000	11,500
Japan	119,322	117,131	102,313	107,399	102,405	102,105	111,748	111,395	101,676	99,500	96,500
N. Korea*	2,900	3,200	2,900	3,000	4,000	5,080	5,400	5,800	5,500	5,500*	5,600
S. Korea	1,157	1,947	1,994	3,515	4,347	4,969	7,610	8,558	10,753	11,800	12,000
Luxembourg	5,924	6,447	4,624	4,565	4,329	4,790	4,949	4,618	3,791	3,500	3,400
Mexico	4,760	5,138	5,272	5,298	5,601	6,711	7,005	7,099	7,605	7,100	6,900
Netherlands	5,623	5,837	4,817	5,178	4,923	5,583	5,806	5,264	5,464	4,400	4,200
Poland	14,057	14,556	15,007	15,640	17,841	19,251	19,218	19,485	15,719	14,500*	13,000
Rumania	8,161	8,840	9,549	10,970	11,457	11,780	12,909	13,175	13,025	13,000*	12,500
South Africa	5,722	5,839	6,831	7,106	7,295	7,902	8,876	9,068	9,004	8,200	6,600
Spain	10,800	11,502	11,102	10,982	11,169	11,339	12,248	12,672	12,919	13,100	12,900
Sweden	5,663	5,968	5,611	5,139	3,968	4,327	4,700	4,237	3,770	3,900	4,200
U.K.	26,667	22,384	19,773	22,396	20,467	20,367	21,523	11,342	15,573	13,700	15,300
U.S.S.R.	131,481	136,200	141,325	144,805	146,655	151,400	149,087	147,931	148,517	147,000*	145,000
U.S.	136,902	132,195	105,816	116,120	114,700	124,002	123,276	101,896	108,782	67,600	74,300
Yugoslavia	2,676	2,836	2,916	2,751	3,182	3,456	3,535	3,634	3,977	3,900*	4,100
Others	13,022	13,790	13,548	14,970	17,672	21,061	24,812	25,748	22,749	20,000*	22,000
Total	697,524	703,763	642,900	675,511	675,635	717,150	748,448	716,018	706,956	625,400	625,900

*Estimates. Source International Iron and Steel Institute.

U.S. Yearly Raw Steel Production†

Net Tons

	Openhearth		Basic Oxygen Process		Bessemer**		Electric**		
	Production	Percent of Total Output	Production	Percent of Total Output	Product	Percent of Total Output	Production	Percent of Total Output	Total Production
1952	82,848,439	88.9	....	....	3,523,677	3.8	6,797,923	7.3	93,168,039
1953	100,473,823	90.0	....	....	3,855,705	3.5	7,280,191	6.5	111,609,719
1954	80,327,494	91.0	....	....	2,584,104	2.9	5,436,054	6.1	88,311,652
1955	105,359,417	90.0	307,279	....	3,319,517	2.8	8,049,872	7.2	117,036,085
1956	102,840,585	89.2	506,338	....	3,227,997	2.8	8,641,229	8.0	115,216,149
1957	101,657,776	90.2	611,508	....	2,475,138	2.2	7,970,574	7.6	112,714,996
1958	75,679,394	89.0	1,323,361	1.5	1,395,985	1.6	6,656,145	7.9	85,254,885
1959	81,668,997	87.3	1,864,338	2.0	1,380,283	1.5	8,532,514	9.2	93,446,132
1960	96,367,506	87.0	3,346,150	3.3	1,189,196	1.5	8,378,743	9.2	99,281,601
1961	84,502,071	86.2	3,967,158	4.0	881,080	.89	8,664,203	8.9	98,014,492
1962	82,957,318	84.8	5,552,697	5.2	804,964	.8	9,012,806	9.2	98,327,785
1963	88,833,925	81.3	8,544,078	7.8	962,659	.9	10,920,287	10.0	109,260,949
1964	98,097,499	77.2	15,442,186	12.2	857,586	0.6	12,678,496	10.0	127,075,767
1965	94,193,225	71.7	22,878,605	17.4	585,965	0.4	13,803,806	10.5	131,461,601
1966	85,024,572	63.4	33,928,374	25.4	278,119	0.2	14,870,363	11.0	134,101,428
1967	70,690,028	55.6	41,434,350	32.5	**	**	15,088,545	11.9	127,212,923
1968	65,836,000	50.1	48,812,000	37.2	**	**	16,814,000	12.7	131,462,000
1969	60,894,041	43.1	60,235,671	42.7	**	**	20,131,950	14.2	141,261,662
1970	48,022,000	36.6	63,330,000	48.2	**	**	20,162,000	15.2	131,514,000
1971	35,559,000	29.5	63,943,000	53.1	**	**	20,941,000	17.4	120,443,000
1972	34,936,000	26.2	74,584,000	56.0	**	**	23,721,000	17.8	133,241,000
1973	39,780,000	26.4	83,260,000	55.2	**	**	27,759,000	18.4	150,799,000
1974	35,499,000	24.3	81,552,000	56.0	**	**	28,669,000	19.7	145,720,000
1975	22,161,000	19.1	71,801,000	61.5	**	**	22,680,000	19.4	116,642,000
1976	23,470,000	18.3	79,918,000	62.4	**	**	24,612,000	19.3	128,000,000
1977	20,043,000	16.0	77,408,000	61.8	....	....	27,882,000	22.2	125,333,000
1978	21,310,000	15.5	83,484,000	61.0	....	....	32,287,000	23.5	137,031,000
1979	19,158,000	14.0	83,256,000	61.0	....	....	33,927,000	23.0	136,341,000
1980	13,054,000	11.7	67,615,000	60.4	....	....	31,166,000	27.9	111,835,000
1981	13,452,000	11.1	73,231,000	60.6	....	....	34,145,000	28.3	120,828,000
1982	6,115,000	8.2	45,268,000	60.7	....	....	23,193	31.1	74,577,000
1983††	....	....	....	....	....	....	....	....	83,500,000

*Includes very small tonnages of crucible steel. †† IRON AGE estimate. Source: American Iron & Steel Institute.
**Included in openhearth since 1966. † Steel in first solid state after melting suitable for further processing or sale, including ingots, steel castings and strand or pressure cast blooms, billets, slabs, or other product forms.

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U.S. Monthly Raw Steel† Production, Net Tons

	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Jan.	6,753,912	9,317,385	12,049,404	6,416,004	10,352,748	8,390,914	9,526,000	11,830,469	10,577,000	10,833,000	12,014,599	11,083,447	11,242,855
Feb.	5,782,323	9,602,938	11,126,806	6,239,098	9,698,316	8,222,352	9,485,359	10,865,869	10,249,000	10,041,000	11,794,896	10,915,021	10,498,356
Mar.	6,254,622	11,567,745	11,564,683	7,086,389	10,583,943	10,080,014	10,496,987	12,346,963	12,083,000	10,963,000	12,721,053	12,400,375	11,885,581
Apr.	5,532,961	11,281,920	9,777,857	7,584,687	9,235,881	10,695,382	10,560,651	11,966,162	11,570,000	10,349,000	12,450,040	12,142,751	11,385,675
May	6,301,159	11,600,581	8,830,472	8,980,626	7,535,506	11,489,524	11,060,357	12,012,449	12,191,000	10,577,000	12,700,325	12,356,384	11,574,485
June	7,127,480	10,907,834	7,404,873	8,551,856	6,691,785	10,365,154	10,184,634	11,563,450	11,403,000	9,576,000	11,905,936	11,810,287	11,323,096
July	6,420,405	5,227,129	5,350,924	8,091,956	6,174,187	8,653,544	10,105,609	11,550,968	10,791,000	9,620,000	11,452,388	11,385,146	10,780,960
Aug.	7,266,003	1,439,277	6,838,000	8,660,527	7,097,916	7,781,560	10,515,268	11,324,149	11,097,000	10,300,000	8,955,712	11,420,995	10,764,738
Sept.	7,610,372	1,535,017	6,458,421	8,904,000	7,251,023	7,858,009	10,668,978	9,949,355	11,280,000	10,438,000	8,085,770	11,523,106	10,726,618
Oct.	8,639,778	1,704,533	6,868,380	9,173,170	7,780,538	8,483,160	11,568,248	9,295,828	11,509,000	11,171,000	9,006,237	12,323,544	10,698,720
Nov.	8,569,318	7,267,507	6,171,940	8,745,966	7,846,057	8,486,239	11,292,070	8,822,186	10,887,000	11,299,000	9,590,000	11,916,305	10,008,000
Dec.	8,710,522	11,969,319	5,839,841	9,568,954	8,079,885	8,753,117	11,611,606	9,627,156	10,435,000	11,953,000	10,421,000	11,812,097	10,438,000
Total	85,254,685	93,448,132	99,281,801	98,614,492	96,327,785	109,298,949	127,975,767	131,451,881	134,101,000	127,213,000	131,462,000	141,281,862	131,514,000

	1971*	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Jan.	11,273,740	10,001,028	12,372,882	12,726,000	11,584,190	9,834,725	9,089,254	10,301,277	11,104,826	10,700,736	10,590,135	7,737,389	5,570,000
Feb.	10,874,377	9,979,752	11,625,734	11,598,000	10,861,663	9,906,523	8,858,898	9,643,242	10,562,363	10,331,868	10,026,344	7,177,979	5,676,000
Mar.	12,645,241	11,587,946	13,088,378	12,758,000	11,980,244	11,294,279	11,049,228	11,082,593	12,575,987	11,438,944	11,744,370	8,048,821	7,127,000
Apr.	12,564,686	11,587,706	12,788,629	12,442,000	10,667,492	11,439,185	11,166,557	11,528,367	12,195,612	10,658,202	11,242,726	7,005,717	7,292,000
May	12,920,415	11,936,558	13,174,066	12,752,000	9,863,557	12,136,009	12,200,552	12,320,398	12,788,673	9,225,991	11,422,988	6,678,457	7,412,000
June	11,490,802	10,979,970	12,487,656	12,185,000	8,743,842	11,604,506	11,383,812	11,860,523	12,229,990	7,500,772	10,451,364	6,050,062	3,993,000
July	9,942,264	10,341,230	12,290,250	12,155,000	8,370,426	11,399,954	10,319,277	11,387,671	11,821,349	6,795,726	10,159,544	5,718,617	3,912,000
Aug.	5,773,716	10,842,279	12,181,330	11,837,000	6,648,260	11,128,102	10,392,460	11,549,515	11,309,493	7,018,547	10,120,254	5,537,970	7,020,000
Sept.	7,678,110	10,912,540	12,229,008	11,849,000	9,295,321	10,462,577	10,050,311	11,467,224	10,541,320	7,766,905	9,816,072	5,296,822	7,134,000
Oct.	8,211,000	11,656,841	12,875,791	12,617,045	9,213,736	10,278,000	10,442,000	12,105,000	10,809,966	9,442,103	9,002,756	5,262,370	7,692,000
Nov.	8,053,140	11,398,316	12,586,509	11,614,000	8,709,090	9,494,000	9,748,000	11,654,000	9,997,000	10,057,000	7,962,000	4,546,000	7,650,000*
Dec.	8,783,805	11,878,199	12,721,577	10,960,000	8,845,511	9,215,000	10,031,000	11,812,000	9,996,000	10,180,000	7,671,000	4,456,000	7,100,000*
Total	129,442,526	133,241,165	150,798,927	145,726,000	116,760,332	128,000,000	125,333,000	137,831,000	136,341,000	111,835,000	120,828,000	74,577,000	83,500,000*

*Estimate
† Steel in first solid state after melting suitable for further processing or sale, including ingots, steel castings and continuous or pressure cast blooms, billets, slabs, or other product forms.

Source: American Iron and Steel Institute

U.S. Raw Steel Production, Rate of Capability Utilization

	1965†	1966††	1967		1968	1969	1970	1971	1972	1973	1974		1975†††	1976	1977	1978	1979	1980	1981	1982	1983
Jan.	143.4	97.9	98.4	Jan.	111.2	102.6	104.1	104.3	92.6	114.5	117.8	Jan.	90.4	74.4	66.8	77.2	83.5	82.7	79.9	59.3	43.4
Feb.	145.8	105.0	102.9	Feb.	116.7	111.8	107.6	111.4	98.7	119.1	118.8	Feb.	93.8	80.1	72.1	80.1	87.9	85.3	83.7	60.9	49.0
Mar.	149.7	111.8	101.5	Mar.	117.7	114.8	110.0	117.0	107.3	121.1	118.1	Mar.	93.4	85.4	81.2	83.1	94.5	88.4	86.6	61.7	55.5
Apr.	149.9	110.6	99.0	Apr.	119.1	116.1	108.9	120.2	110.8	122.3	119.0	Apr.	84.9	88.4	83.3	88.5	93.4	83.0	87.7	55.2	58.9
May	145.6	112.8	97.9	May	117.5	114.4	107.1	119.6	110.5	121.9	118.0	May	75.9	90.8	88.1	91.5	94.8	69.6	86.2	50.9	57.9
June	145.2	109.1	91.6	June	113.9	113.0	108.3	109.9	105.0	119.4	116.5	June	69.6	89.7	84.9	91.1	93.7	58.4	81.5	47.7	56.5
July	140.0	99.9	89.0	July	106.0	105.2	99.9	92.0	95.7	113.8	112.5	July	65.1	84.8	76.7	85.1	89.9	53.1	77.6	43.8	54.3
Aug.	137.3	102.7	95.3	Aug.	82.9	105.7	99.6	53.4	100.4	112.7	109.6	Aug.	67.3	82.8	77.2	86.3	86.0	54.8	77.3	42.4	55.1
Sept.	124.6	107.9	99.8	Sept.	77.3	110.2	102.6	73.4	104.4	117.0	113.3	Sept.	74.7	80.4	77.2	88.6	82.8	62.7	75.9	41.9	57.8
Oct.	112.7	106.5	103.4	Oct.	83.4	114.1	99.0	76.0	107.9	119.2	116.8	Oct.	69.0	75.8	77.7	88.1	84.4	72.2	68.7	40.2	60.2
Nov.	110.5	104.1	108.1	Nov.	91.7	114.0	95.7	77.0	109.0	120.4	111.1	Nov.	67.4	72.2	75.0	89.4	80.6	79.5	62.8	35.9	57.8*
Dec.	116.7	96.6	110.6	Dec.	96.5	109.3	96.6	81.3	109.9	117.7	101.4	Dec.	66.2	67.8	74.7	87.7	78.0	77.8	58.6	34.0	56.7*
Average	135.3	105.6	100.0	Average	103.1	111.0	103.4	94.7	104.5	118.5	114.5	Average	76.2	80.9	78.4	86.8	87.8	72.8	78.3	47.8	55.3*

*Estimate. †AISI Index of Production (1957-1959=100). ††Production Index 1967=100, revised back to 1966 in Jan. 1971.
†††Rate of Capability Utilization, begun January, 1976, revised back to January, 1975.

Source: AISI

STEEL PRICES

Composite Prices by Periods

Period	Cents per Pound
Sept. 5, 1977 to Jan. 30, 1978	16.043
Jan. 30, 1978 to Feb. 27, 1978	17.301
Feb. 27, 1978 to April 3, 1978	17.393
April 3, 1978 to April 17, 1978	17.672
April 17, 1978 to July 31, 1978	17.670
July 31, 1978 to Dec. 31, 1978	18.719
Jan. 1, 1979 to April 1, 1979	19.549
April 1, 1979 to May 13, 1979	19.606
May 13, 1979 to July 1, 1979	19.668
July 1, 1979 to July 9, 1979	20.095
July 9, 1979 to Oct. 1, 1979	20.311
Oct. 1, 1979 to Jan. 6, 1980	20.547
Jan. 7, 1980 to Mar. 1, 1980	21.036
Mar. 2, 1980 to Mar. 9, 1980	21.130
Mar. 10, 1980 to Mar. 31, 1980	21.180
Apr. 1, 1980 to July 6, 1980	21.739
July 7, 1980 to Oct. 4, 1980	21.736
Oct. 5, 1980 to Nov. 30, 1980	22.019
Dec. 1, 1980 to Dec. 31, 1980	22.286
Jan. 1, 1981 to Feb. 1, 1981	22.901
Feb. 2, 1981 to Feb. 28, 1981	23.362
Mar. 1, 1981 to Mar. 28, 1981	23.598
Mar. 29, 1981 to June 20, 1981	23.776
June 21, 1981 to Sept. 26, 1981	24.488
Sept. 27, 1981 to April 3, 1982	25.195
April 4, 1982 to Feb. 5, 1983	25.297
Feb. 6, 1983 to Feb. 13, 1983	25.954
Feb. 14, 1983 to Aug. 31, 1983	26.217
Sept. 1, 1983 to Dec. 31, 1983	26.822

The Iron Age Finished Steel Composite Price

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
January	6.368	6.368	6.368	6.445	6.545	6.794	7.263	7.838	9.014	9.363
February	6.368	6.368	6.368	6.448	6.545	6.904	7.351	7.838	8.998	9.363
March	6.368	6.368	6.383	6.448	6.545	6.961	7.434	8.012	8.998	9.363
April	6.368	6.368	6.383	6.448	6.545	6.961	7.504	8.055	8.998	9.363
May	6.368	6.368	6.383	6.448	6.545	7.042	7.560	8.055	8.998	9.363
June	6.368	6.368	6.376	6.448	6.545	7.042	7.813	8.234	8.998	9.363
July	6.368	6.368	6.376	6.448	6.545	7.125	7.813	8.480	8.998	9.363
August	6.368	6.368	6.376	6.448	6.767	7.252	7.813	8.728	8.998	9.363
September	6.368	6.368	6.433	6.485	6.767	7.252	7.813	8.977	8.998	9.363
October	6.368	6.368	6.445	6.496	6.767	7.252	7.813	8.977	8.998	9.432
November	6.368	6.368	6.445	6.496	6.538	7.252	7.813	8.977	8.998	9.432
December	6.368	6.368	6.445	6.510	6.538	7.263	7.813	8.977	8.998	9.432
Average	6.368	6.368	6.399	6.464	6.600	7.091	7.650	8.428	8.998	9.380

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
January	9.456	12.739	13.693	15.146	16.294	19.549	20.943	22.901	25.195	25.297
February	9.480	12.928	13.693	15.146	17.324	19.549	21.038	23.362	25.195	25.978
March	9.480	12.928	13.693	15.146	17.393	19.549	21.166	23.598	25.195	25.954
April	10.033	12.928	13.693	15.146	17.670	19.606	21.739	23.776	25.297	25.954
May	10.033	12.928	13.835	15.146	17.670	19.637	21.739	23.776	25.297	25.954
June	11.108	12.920	14.186	15.146	17.670	19.668	21.739	24.232	25.297	25.954
July	12.075	12.912	14.502	15.941	17.670	20.253	21.736	24.488	25.297	25.954
August	12.346	12.912	14.598	15.941	18.719	20.311	21.736	24.488	25.297	25.954
September	12.389	12.961	14.598	16.043	18.719	20.311	21.736	24.488	25.297	26.822
October	12.433	13.692	14.598	16.043	18.719	20.547	21.962	25.195	25.297	26.822
November	12.433	13.693	14.598	16.043	18.719	20.547	22.019	25.195	25.297	26.822
December	12.433	13.693	14.680	16.043	18.719	20.547	22.286	25.195	25.297	26.822
Average	11.141	13.102	14.213	15.577	17.940	20.006	21.655	24.224	25.271	26.190

Hot-Rolled Sheets
At Pittsburgh, Cents Per Pound

	1972	1973	1974	1975	1976	1977
Jan	8.60	8.35	8.55	11.00	11.70	13.25
Feb	8.35	8.35	8.55	11.00	11.70	13.25
Mar	8.35	8.35	8.55	11.00	11.70	13.25
Apr	8.35	8.35	8.55	11.00	11.70	13.25
May	8.35	8.35	9.55	11.00	11.70	13.25
June	8.35	8.35	9.55	11.00	11.70	13.25
July	8.35	8.35	11.00	11.00	12.45	14.175
Aug	8.35	8.35	11.00	11.00	12.45	14.175
Sept	8.35	8.35	11.00	11.00	12.45	14.175
Oct	8.35	8.55	11.00	11.70	12.45	14.175
Nov	8.35	8.55	11.00	11.70	12.45	14.175
Dec	8.35	8.55	11.00	11.70	13.25	14.175
Average	8.37	8.40	9.94	11.17	12.14	13.712

	1978	1979	1980	1981	1982	1983
Jan	14.175	16.60	17.50	19.50	20.80	20.80
Feb	14.175	16.60	17.50	19.50	20.80	22.05
Mar	14.1750	16.60	17.50	19.50	20.80	22.05
Apr	14.175	16.60	18.45	19.50	20.80	22.05
May	15.275	16.60	18.45	19.50	20.80	22.05
June	15.275	16.60	18.45	20.15	20.80	22.05
July	15.275	16.60	18.45	20.80	20.80	22.05
Aug	15.80	17.50	18.45	20.80	20.80	22.05
Sept	15.80	17.50	18.45	20.80	20.80	23.75
Oct	15.80	17.50	18.45	20.80	20.80	23.75
Nov	15.80	17.50	18.45	20.80	20.80	23.75
Dec	15.80	17.50	18.45	20.80	20.80	23.75
Average	15.12	16.97	18.21	20.20	20.80	22.51

Hot-Rolled Strip
At Pittsburgh, Cents Per Pound

	1972	1973	1974	1975	1976	1977
Jan	8.40	8.15	8.375	11.00	11.70	13.25
Feb	8.15	8.15	8.375	11.00	11.70	13.25
Mar	8.15	8.15	8.375	11.00	11.70	13.25
Apr	8.15	8.15	8.375	11.00	11.70	13.25
May	8.15	8.15	9.50	11.00	11.70	13.25
June	8.15	8.15	9.50	11.00	11.70	13.25
July	8.15	8.15	11.00	11.00	12.45	14.175
Aug	8.15	8.15	11.00	11.00	12.45	14.175
Sept	8.15	8.15	11.00	11.00	12.45	14.175
Oct	8.15	8.375	11.00	11.70	12.45	14.175
Nov	8.15	8.375	11.00	11.70	12.45	14.175
Dec	8.15	8.375	11.00	11.70	13.25	14.175
Average	8.17	8.206	9.875	11.17	12.15	13.70

	1978	1979	1980	1981	1982	1983
Jan	14.175	16.60	17.50	19.50	20.80	20.80
Feb	14.175	16.60	17.50	19.50	20.80	22.05
Mar	14.175	16.60	17.50	19.50	20.80	22.05
Apr	14.175	16.60	18.45	19.50	20.80	22.05
May	15.275	16.60	18.45	19.50	20.80	22.05
June	15.275	16.60	18.45	20.15	20.80	22.05
July	15.275	16.60	18.45	20.80	20.80	22.05
Aug	15.80	17.50	18.45	20.80	20.80	22.05
Sept	15.80	17.50	18.45	20.80	20.80	23.75
Oct	15.80	17.50	18.45	20.80	20.80	23.75
Nov	15.80	17.50	18.45	20.80	20.80	23.75
Dec	15.80	17.50	18.45	20.80	20.80	23.75
Average	14.79	16.97	18.21	20.20	20.80	22.51

Tinplate
Single Reduced, 70 lb.
Dollars Per Base Box, Pittsburgh

	1970	1971	1972	1973	1974	1975	1976
Jan	$7.70	$8.85	$9.35	$9.35	$9.75	$13.70	$13.70
Feb	7.70	8.85	9.35	9.35	9.75	13.70	13.70
Mar	7.70	8.85	9.35	9.75	10.15	13.70	15.10
Apr	7.95	8.85	9.35	9.75	10.15	13.70	15.10
May	8.20	8.85	9.35	9.75	10.15	13.70	15.10
June	8.20	8.85	9.35	9.75	11.30	13.70	15.10
July	8.20	8.85	9.35	9.75	11.30	13.30	15.10
Aug	8.20	8.85	9.35	9.75	11.30	13.70	15.10
Sept	8.20	8.85	9.35	9.75	11.30	13.70	15.10
Oct	8.55	8.85	9.35	9.75	11.30	13.70	15.10
Nov	8.55	8.85	9.35	9.75	13.45	13.70	15.10
Dec	8.55	8.85	9.35	9.75	13.45	13.70	15.10
Average	8.22	8.85	9.35	9.68	11.11	13.70	14.86

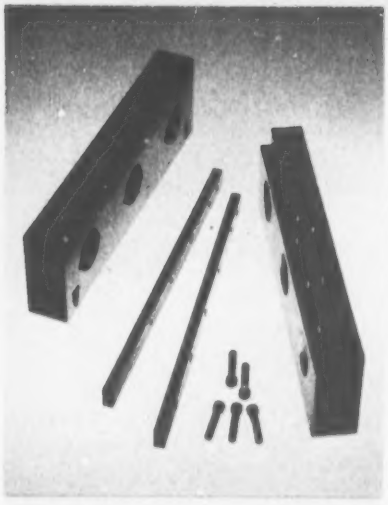
	1977	1978	1979	1980	1981	1982	1983
Jan	$15.10	$17.05	$19.01	$21.93	$24.94	$26.29	$26.29
Feb	15.10	17.05	19.27	21.93	24.94	26.29	26.29
Mar	15.75	17.80	19.27	21.93	24.94	26.29	26.29
Apr	15.75	17.80	20.57	23.31	24.94	26.29	26.29
May	15.75	18.00	20.57	23.31	24.94	26.29	26.29
June	15.75	18.00	20.57	23.31	24.94	26.29	26.29
July	15.75	18.00	20.57	23.31	24.94	26.29	26.29
Aug	15.75	18.00	20.57	21.31	24.94	26.29	26.29
Sept	17.05	18.00	20.57	21.31	24.94	26.29	27.74
Oct	17.05	19.10	21.93	21.31	24.94	26.29	27.74
Nov	17.05	19.10	21.93	21.31	24.94	26.29	27.74
Dec	17.05	19.10	21.93	21.31	24.94	26.29	27.74
Average	16.07	18.08	20.57	22.89	24.94	26.29	26.77

Galvanized Sheets
At Pittsdburgh, Cents Per Pound†

	1972	1973	1974	1975	1976	1977
Jan	10.875	10.525	10.80	14.05	15.40	17.40
Feb	10.525	10.525	10.80	14.05	15.40	17.40
Mar	10.525	10.525	10.80	14.05	15.40	17.40
Apr	10.525	10.525	10.80	14.05	15.40	17.40
May	10.525	10.525	12.15	14.05	15.40	17.40
June	10.525	10.525	12.15	14.05	16.40	17.40
July	10.525	10.525	14.05	14.05	16.40	18.60
Aug	10.525	10.525	14.05	14.05	16.40	18.60
Sept	10.525	10.525	14.05	14.05	16.40	18.60
Oct	10.525	10.80	14.05	15.40	16.40	18.60
Nov	10.525	10.80	14.05	15.40	16.40	18.60
Dec	10.525	10.80	14.05	15.40	17.40	18.60
Average	10.554	10.59	12.65	14.39	16.07	18.00

	1978	1979	1980	1981	1982	1983
Jan	18.60	21.95	22.85	25.25	26.25	26.25
Feb	19.80	21.95	22.85	25.25	26.25	26.00
Mar	19.80	21.95	22.85	25.25	26.25	26.00
Apr	19.80	21.95	23.80	25.25	26.25	26.00
May	20.075	21.95	23.80	25.25	26.25	26.00
June	20.075	21.95	23.80	26.20	26.25	26.00
July	20.075	21.95	23.80	27.15	26.25	28.00
Aug	20.80	22.85	23.80	27.15	26.25	28.00
Sept	20.80	22.85	23.80	27.15	26.25	30.30
Oct	20.80	22.85	23.80	27.15	26.25	30.30
Nov	20.80	22.85	23.80	27.15	26.25	30.30
Dec	20.80	22.85	23.80	27.15	26.25	30.30
Average	20.18	22.32	23.56	26.30	26.25	28.62

†Hot-Dipped, 10 ga.



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Phone 412-539-5000.

KENNAMETAL

Where there's service after the sale.

A81-350

For Information, Circle 142

Cold-Rolled Sheets
At Pittsburgh, Cents Per Pound

	1972	1973	1974	1975	1976	1977
Jan	9.25	10.075	10.30	13.00	13.90	15.80
Feb	10.075	10.075	10.30	13.00	13.90	15.80
Mar	10.075	10.075	10.30	13.00	13.90	15.80
Apr	10.075	10.075	10.30	13.00	13.90	15.80
May	10.075	10.075	11.30	13.00	13.90	15.80
June	10.075	10.075	11.30	13.00	13.90	15.80
July	10.075	10.075	13.00	13.00	14.80	16.90
Aug	10.075	10.075	13.00	13.00	14.80	16.90
Sept	10.075	10.075	13.00	13.00	14.80	16.90
Oct	10.075	10.30	13.00	13.90	14.80	16.90
Nov	10.075	10.30	13.00	13.90	14.80	16.90
Dec	10.075	10.30	13.00	13.90	15.80	16.90
Average	9.312	10.13	11.82	13.22	14.43	16.35

	1978	1979	1980	1981	1982	1983
Jan	16.90	19.75	20.75	23.15	24.65	24.65
Feb	16.90	19.75	20.75	23.15	24.65	26.15
Mar	16.90	19.75	20.75	23.15	24.65	26.15
Apr	16.90	19.75	21.90	23.15	24.65	26.15
May	18.175	19.75	21.90	23.15	24.65	26.15
June	18.175	19.75	21.90	23.90	24.65	26.15
July	18.175	19.75	21.90	24.65	24.65	26.15
Aug	18.80	20.75	21.90	24.65	24.65	26.15
Sept	18.80	20.75	21.90	24.65	24.65	26.15
Oct	18.80	20.75	21.90	24.65	24.65	26.15
Nov	18.80	20.75	21.90	24.65	24.65	26.15
Dec	18.80	20.75	21.90	24.65	24.65	26.15
Average	17.17	20.16	21.62	23.96	24.65	26.09

Structural Steel Shapes
At Pittsburgh, Cents Per Pound

	1978	1979	1980	1981	1982	1983
Jan	14.55	17.00	18.00	19.90	22.90	23.90
Feb	14.55	17.00	18.00	19.90	22.90	23.90
Mar	14.55	17.00	18.90	19.90	22.90	23.90
Apr	14.55	17.00	18.90	21.65	23.90	23.90
May	15.725	17.15	18.90	21.65	23.90	23.90
June	15.725	17.30	18.90	21.65	23.90	23.90
July	15.725	17.30	18.90	21.65	23.90	23.90
Aug	16.25	17.30	18.90	21.65	23.90	23.90
Sept	16.25	17.30	18.90	21.65	23.90	23.90
Oct	16.25	18.00	19.90	22.90	23.90	23.90
Nov	16.25	18.00	19.90	22.90	23.90	23.90
Dec	16.25	18.00	19.90	22.90	23.90	23.90
Average	15.58	17.36	19.00	21.52	23.65	23.90

Special Quality Bars
At Pittsburgh, Cents Per Pound

	1978	1979	1980	1981	1982	1983
Jan	16.15	19.10	21.00	22.80	23.95	23.95
Feb	16.15	19.10	21.00	22.80	23.95	25.80
Mar	16.15	19.10	21.00	22.80	23.95	25.80
Apr	16.15	19.10	21.00	22.80	23.95	25.80
May	17.525	19.10	21.00	22.80	23.95	25.80
June	17.525	19.10	21.00	23.95	23.95	25.80
July	17.525	19.10	21.00	23.95	23.95	25.80
Aug	18.15	19.85	21.00	23.95	23.95	25.80
Sept	18.15	19.85	21.00	23.95	23.95	25.80
Oct	18.15	19.85	21.00	23.95	23.95	25.80
Nov	18.15	19.85	22.80	23.95	23.95	25.80
Dec	18.15	19.85	22.80	23.95	23.95	25.80
Average	17.33	19.41	21.30	23.29	23.95	25.65

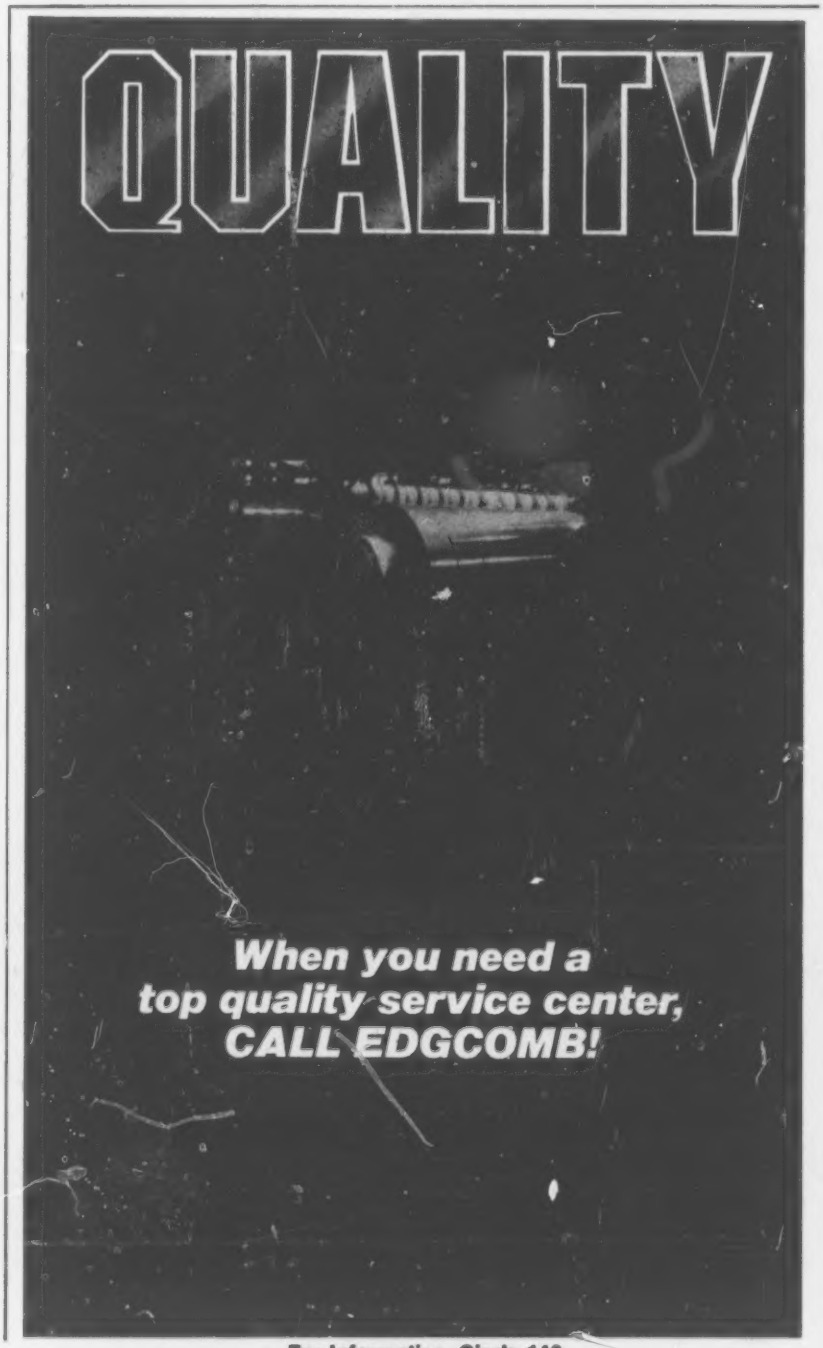
Steel Plates
At Pittsburgh, Cents Per Pound

	1978	1979	1980	1981	1982	1983
Jan	15.10	17.85	19.45	21.50	24.25	24.25
Feb	15.10	17.85	19.45	21.50	24.25	25.75
Mar	15.10	17.85	19.45	23.25	24.25	25.75
Apr	15.10	17.85	20.70	23.25	24.25	25.75
May	16.425	18.17	20.70	23.25	24.25	25.75
June	16.425	18.50	20.70	23.25	24.25	25.75
July	16.425	18.50	20.70	23.25	24.25	25.75
Aug	17.05	18.50	20.70	23.25	24.25	25.75
Sept	17.05	18.50	20.70	23.25	24.25	25.75
Oct	17.05	19.45	21.50	24.25	24.25	25.75
Nov	17.05	19.45	21.50	24.25	24.25	25.75
Dec	17.05	19.45	21.50	24.25	24.25	25.75
Average	16.24	18.49	20.62	23.20	24.25	25.625

Composite Pig Iron Price

Average of Iron Age quotes on basic and foundry iron per net ton.

	1978	1979	1980	1981	1982	1983
Jan	$191.75	$203.00	$203.00	$203.00	$213.00	$213.00
Feb	191.75	203.00	203.00	203.00	213.00	213.00
Mar	191.75	203.00	203.00	203.00	213.00	213.00
Apr	191.75	203.00	203.00	203.00	213.00	213.00
May	191.75	203.00	203.00	203.00	213.00	213.00
June	203.00	203.00	203.00	203.00	213.00	213.00
July	203.00	203.00	203.00	203.00	213.00	213.00
Aug	203.00	203.00	203.00	203.00	213.00	213.00
Sept	203.00	203.00	203.00	203.00	213.00	213.00
Oct	203.00	203.00	203.00	203.00	213.00	213.00
Nov	203.00	203.00	203.00	203.00	213.00	213.00
Dec	203.00	203.00	203.00	213.00	213.00	213.00
Average	$198.31	$203.00	$203.00	213.00	$213.00	$213.00



For Information, Circle 143

SCRAP COMPOSITES

Philadelphia

*Estimate

Prices of No. 1 Scrap, Per Gross Ton

	1978	1979	1980	1981	1982	1983
Jan	$68.70	$101.10	$100.50	$95.75	$75.25	$57.50
Feb	72.75	110.75	108.00	91.50	75.50	62.50
Mar	76.00	110.25	101.50	91.50	72.90	63.50
Apr	74.75	97.70	92.75	90.00	71.50	65.00
May	71.10	90.75	82.50	84.50	65.00	65.70
June	74.30	93.00	78.10	79.50	60.30	68.50
July	78.00	91.50	83.00	79.50	59.50	68.50
Aug	78.00	89.25	88.25	79.30	59.50	68.50
Sept	75.50	88.50	91.90	78.50	59.50	69.50
Oct	76.30	87.30	91.50	69.50	57.00	71.50
Nov	84.00	88.50	91.50	66.50	54.70	78.00
Dec	91.50	92.70	96.50	66.50	54.50	83.50*
Average	76.74	96.10	92.00	81.05	63.76	68.50*

No. 2 Bundles

*Estimate

	1978	1979	1980	1981	1982	1983
Jan	$46.90	$60.10	$72.00	$64.00	$43.50	$40.50
Feb	51.25	66.50	76.25	60.75	43.50	45.00
Mar	53.50	72.25	71.50	60.50	43.50	46.50
Apr	51.75	62.70	64.75	60.50	41.50	45.50
May	47.30	64.50	53.25	57.50	40.50	43.70
June	50.10	66.50	51.10	54.50	40.10	43.00
July	51.50	68.50	56.00	54.50	39.50	41.25
Aug	51.50	61.50	63.00	54.30	39.50	40.50
Sept	49.50	59.25	65.10	51.50	39.50	40.50
Oct	48.70	58.50	64.50	46.00	39.50	43.70
Nov	55.50	60.00	64.50	39.30	39.50	49.50
Dec	56.50	66.30	63.50	37.50	39.80	54.50*
Average	51.17	63.71	63.93	53.41	40.80	44.52*

Pittsburgh

*Estimate

Prices of No. 1 Scrap, Per Gross Ton

	1978	1979	1980	1981	1982	1983
Jan	$71.50	$ 93.30	$102.00	$104.50	$94.50	$83.90
Feb	72.00	111.75	106.50	105.75	91.50	73.25
Mar	74.50	127.75	105.50	116.10	85.90	78.25
Apr	77.50	102.90	96.00	110.75	75.50	75.50
May	73.10	102.75	79.50	105.10	64.50	69.10
June	74.70	105.50	89.50	100.00	61.50	72.50
July	77.50	99.90	77.75	102.50	59.00	74.50
Aug	77.00	93.50	87.50	107.10	57.50	79.70
Sept	73.75	89.25	102.90	101.50	57.50	82.50
Oct	75.70	87.30	102.50	93.00	55.25	82.90
Nov	83.25	94.50	105.25	84.90	52.50	85.50
Dec	87.00	95.70	103.10	87.25	53.75	90.50*
Average	76.45	100.34	95.00	101.54	67.41	77.35*

No. 2 Bundles

*Estimate

	1978	1979	1980	1981	1982	1983
Jan	$50.30	$60.10	$61.00	$74.50	$60.50	$43.10
Feb	49.75	70.50	67.50	74.50	62.50	50.75
Mar	49.50	78.75	68.70	77.30	53.70	54.50
Apr	50.25	67.70	64.50	81.50	48.75	51.50
May	47.10	69.75	58.75	73.50	46.50	51.50
June	47.70	74.50	52.70	85.70	44.50	51.50
July	52.00	68.30	54.50	84.50	44.50	51.50
Aug	49.75	64.75	63.50	84.50	44.50	51.50
Sept	46.50	62.75	66.50	84.50	42.50	51.50
Oct	46.30	59.30	66.50	83.00	40.25	51.50
Nov	51.00	59.25	69.75	80.50	38.10	52.75
Dec	55.25	59.50	73.90	80.50	37.50	59.50*
Average	49.61	66.26	63.98	68.71	46.98	51.76*

Chicago

Prices of No. 1 Scrap, Per Gross Ton

	1978	1979	1980	1981	1982	1983
Jan	$71.50	$ 98.30	$ 96.50	$ 95.50	$83.25	$62.70
Feb	71.50	109.75	100.50	101.25	79.50	74.25
Mar	72.25	121.25	96.50	108.10	71.70	77.50
Apr	76.00	99.30	86.00	104.50	67.00	72.50
May	71.50	99.75	90	96.75	58.50	68.30
June	75.30	104.00	83.50	88.50	52.30	71.50
July	77.75	96.90	87.50	88.50	49.50	72.25
Aug	74.00	88.25	77.50	97.50	50.70	76.90
Sept	69.50	86.50	88.50	91.25	51.50	79.50
Oct	72.50	87.30	93.75	81.00	46.50	79.50
Nov	83.00	94.50	98.75	75.50	46.50	80.75
Dec	91.25	93.90	105.10	75.50	49.50	84.50*
Average	75.50	98.30	87.05	91.99	58.87	75.02*

No. 2 Bundles

*Estimate

	1978	1979	1980	1981	1982	1983
Jan	$46.50	$64.50	$54.50	$77.00	$65.50	$44.90
Feb	46.75	67.50	58.50	80.25	62.50	50.75
Mar	48.50	68.75	57.50	83.70	56.50	54.50
Apr	51.50	59.90	53.25	83.25	52.50	49.50
May	51.10	63.00	49.50	73.25	47.50	44.50
June	49.30	61.50	48.30	64.50	43.90	44.50
July	50.00	53.50	51.50	65.75	41.50	44.50
Aug	48.00	49.50	61.50	68.70	41.50	44.50
Sept	46.50	50.25	72.10	69.00	41.50	44.50
Oct	48.50	52.50	81.75	60.50	38.50	44.50
Nov	54.50	56.50	87.50	60.50	38.50	45.75
Dec	59.75	57.30	86.50	63.25	39.25	53.00*
Average	50.07	58.72	63.24	70.81	47.43	47.12*

For Information, Circle 144

SCRAP COMPOSITES

Average of Iron Age Scrap Prices Pittsburgh, Chicago, Philadelphia, Gross Ton

No. 1 Heavy Melting

	1978	1979	1980	1981	1982	*Estimate 1983
Jan	$70.56	$ 97.56	$ 99.67	$ 98.58	$84.34	$61.30
Feb	72.08	110.75	105.00	99.50	82.17	70.00
Mar	74.25	119.75	101.17	105.23	76.83	73.09
Apr	76.08	99.96	92.25	101.75	71.33	71.00
May	71.90	97.75	77.50	95.42	62.67	67.70
June	74.76	100.83	89.70	89.37	58.03	70.84
July	77.25	96.10	76.08	90.17	56.00	71.75
Aug	78.33	90.33	84.42	94.63	55.90	75.04
Sept	72.91	88.08	94.43	90.42	56.17	77.17
Oct	74.83	87.30	95.91	81.17	52.92	77.97
Nov	83.41	92.50	98.50	75.63	51.23	81.42
Dec	89.91	94.10	101.57	78.42	52.59	86.17*
Average	78.23	97.91	91.35	91.53	63.35	73.63

No. 2 Bundles

	1978	1979	1980	1981	1982	*Estimate 1983
Jan	$47.90	$61.56	$62.50	$71.83	$56.50	$42.84
Feb	49.25	68.17	67.41	71.83	56.17	48.84
Mar	50.50	73.25	65.90	73.83	51.23	51.84
Apr	51.17	63.43	60.83	75.08	47.58	48.84
May	48.50	65.75	53.83	68.08	44.83	46.57
June	49.03	67.50	50.70	61.57	42.83	46.34
July	51.16	62.76	54.00	61.58	41.83	45.75
Aug	49.75	58.58	62.66	62.50	41.83	45.50
Sept	47.50	57.41	67.90	61.66	41.47	45.50
Oct	47.83	56.76	70.91	56.50	39.42	46.57
Nov	53.66	58.58	72.75	53.43	38.70	49.34
Dec	57.16	61.03	75.23	53.75	38.75	55.67*
Average	50.28	62.89	63.71	64.31	45.07	47.80*

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For Information, Circle 145

NONFERROUS PRICES AND PRODUCTION

U.S. Production of Primary Aluminum

Short tons

	1980	1981	1982	1983
Jan	430,924	444,826	350,548	279,299
Feb	406,396	404,225	310,405	245,601
Mar	434,260	447,655	336,276	273,086
Apr	421,105	431,189	316,619	270,450
May	437,936	441,356	320,897	291,751
June	424,510	419,802	299,914	286,209
July	426,572	425,115	296,986	312,991
Aug	426,054	416,140	287,077	327,051
Sept	418,945	393,012	271,147	326,581
Oct	436,676	395,565	275,277	352,733
Nov	427,394	364,375	266,366	350,000*
Dec	438,929	364,164	275,120	360,000*
Total	5,129,703	4,947,925	3,608,832	3,679,752

Source: Aluminum Association *IA Estimate

U.S Production of Refined Copper

In tons of 2000 pounds.

	1979	1980	1981	1982	1983
Jan	135,600	161,000	133,500	117,500	97,300
Feb	135,800	149,500	116,300	123,400	100,600
Mar	152,200	162,300	152,200	121,500	131,900
Apr	149,800	170,400	155,800	116,400	125,500
May	154,600	158,700	135,000	107,500	112,200
June	149,400	167,200	158,300	108,600	114,500
July	132,300	52,400	131,700	81,800	73,100
Aug	144,900	26,700	124,000	77,600	90,600
Sept	137,500	27,300	140,500	80,600	91,200
Oct	148,700	61,000	127,300	80,100	110,400
Nov	145,000	85,800	124,900	92,100	94,000*
Dec	33,514	136,900	147,900	90,800	120,000*
Total	1,766,300	1,361,200	1,647,400	1,197,900*	1,261,300*
Average	147,192	113,433	137,283	99,825*	105,108*

Source: ABMS. *IA Estimate.

U.S Production of Slab Zinc

Short tons

	1979	1980	1981	1982	1983
Jan	45,714	30,511	33,445	26,706	20,010
Feb	46,113	30,613	31,457	23,845	22,766
Mar	52,918	34,777	34,450	23,639	24,994
Apr	51,130	32,123	34,051	21,314	24,709
May	49,870	31,922	32,218	23,656	25,858
June	42,953	28,452	30,826	23,713	23,990
July	44,016	20,774	33,018	20,570	17,645
Aug	41,973	26,703	33,534	22,433	25,601
Sept	39,798	28,613	29,424	26,549	25,064
Oct	46,005	30,990	29,778	27,348	26,532
Nov	43,427	29,884	29,276	20,606*	27,500*
Dec	42,000*	33,247	25,301	19,945*	29,500*
Total	537,427	358,609	376,780	280,326*	294,169*
Average	44,786	29,884	31,398	23,361*	24,514*

Source: ABMS. *IA Estimate.

U.S Production of Refined Lead

Short tons

	1979	1980	1981	1982	1983
Jan	52,990	56,879	57,984	50,527	57,029
Feb	52,237	49,324	53,569	45,193	50,943
Mar	60,632	54,058	58,170	43,994	52,825
Apr	52,493	47,493	52,741	36,111	49,938
May	58,065	47,044	35,038	54,323	47,230
June	55,026	47,142	24,378	52,974	42,045
July	52,606	52,037	33,027	44,224	39,525
Aug	49,878	48,173	45,097	48,362	45,263
Sept	45,400	50,158	43,704	49,201	41,226
Oct	52,936	52,156	46,082	50,574	49,972
Nov	54,598	48,438	39,412	77,777	44,000*
Dec	54,252	53,456	44,036	48,585	52,000*
Total	641,113	606,350	533,238	572,814	572,016*
Average	53,426	50,530	44,437	47,718*	47,668

Source: ABMS. *IA Estimate.

Aluminum 99.5 Pct Ingot

Cents Per Pound, Freight Allowed

	1972	1973	1974	1975	1976	1977
Jan.	29.00	25.00	29.00	39.00	41.00	48.00
Feb.	29.00	25.00	29.00	39.00	41.00	48.00
Mar.	29.00	25.00	29.24	39.00	41.00	48.00
Apr.	29.00	25.00	31.50	39.00	41.75	51.00
May	27.00	25.00	31.50	39.00	44.00	51.00
June	25.00	25.00	33.40	39.00	44.00	51.00
July	25.00	25.00	33.50	39.00	44.00	53.00
Aug.	25.00	25.00	35.94	41.00	47.00	53.00
Sept.	25.00	25.00	38.70	41.00	48.00	53.00
Oct.	25.00	25.00	39.00	41.00	48.00	53.00
Nov.	25.00	25.00	39.00	41.00	48.00	53.00
Dec.	25.00	27.00	39.00	41.00	48.00	53.00
Average	26.50	25.17	34.00	39.83	44.65	51.25

	1978	1979	1980	1981	1982	1983†
Jan.	53.00	55.25	66.25	76.00	76.00	76.00
Feb.	53.00	58.00	66.25	76.00	76.00	76.00
Mar.	53.00	58.00	66.25	76.00	76.00	76.00
Apr.	53.00	59.50	72.00	76.00	76.00	76.00
May	55.25	59.50	72.00	76.00	76.00	76.00
June	55.25	59.50	72.00	76.00	76.00	76.00
July	55.25	62.75	72.00	76.00	76.00	76.00
Aug.	55.25	62.75	72.00	76.00	76.00	76.00
Sept.	55.25	62.75	72.00	76.00	76.00	76.00
Oct.	55.25	66.25	76.00	76.00	76.00	81.00
Nov.	55.25	66.25	76.00	76.00	76.00	81.00
Dec.	55.25	66.25	76.00	76.00	76.00	81.00
Average	54.50	61.40	71.56	77.33	76.00	77.25†

†Nominal

Electrolytic Copper

Cents Per Pound

	1972	1973	1974	1975	1976	1977
Jan.	50.35	53.12	68.70	70.50	63.00	65.20
Feb.	50.25	56.12	68.70	63.00	63.00	67.50
Mar.	52.63	60.12	68.70	63.00	64.50	70.63
Apr.	52.63	60.12	68.70	63.00	66.00	74.00
May	52.63	60.12	81.20	63.00	70.00	72.80
June	52.63	60.12	86.10	62.25	70.00	69.88
July	50.63	60.12	86.30	61.50	74.00	68.75
Aug.	50.63	60.12	86.70	63.00	74.00	64.00
Sept.	50.63	60.12	83.00	63.00	74.00	60.00
Oct.	50.63	60.12	78.25	63.00	72.00	60.00
Nov.	50.63	60.12	75.80	63.00	70.00	60.00
Dec.	50.63	68.00	73.00	63.00	65.00	61.29
Average	51.24	59.86	77.00	63.44	68.96	66.17

	1978	1979	1980	1981	1982	1983
Jan.	62.75	75.63	116.95	88.55	79.54	79.00
Feb.	62.25	89.36	134.17	86.01	79.41	82.75
Mar.	61.62	97.75	105.97	86.74	76.34	81.13
Apr.	64.00	90.50	94.57	88.15	76.87	82.40
May	64.33	89.50	92.91	85.99	78.86	82.81
June	65.23	86.39	92.32	85.11	71.67	80.88
July	63.50	85.95	102.88	83.99	71.64	81.75
Aug.	66.47	90.24	101.29	88.32	71.82	79.75
Sept.	66.83	92.36	98.78	84.90	71.87	78.75
Oct.	69.54	97.72	96.91	83.03	71.94	71.50
Nov.	71.20	98.49	96.02	81.93	72.25	68.63*
Dec.	71.50	106.10	88.13	80.97	73.12	70.50*
Average	65.77	92.12	101.90	85.31	74.61	78.15*

*IA Estimate

Straits Tin, Spot Price

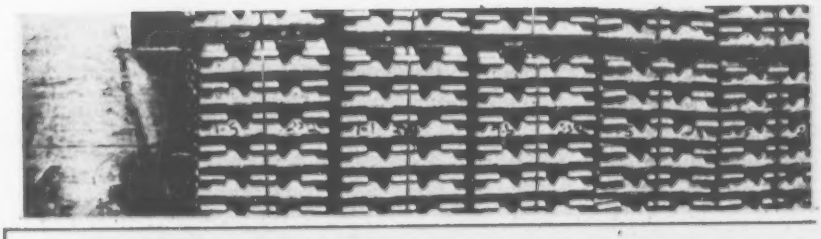
(cents per pound†)

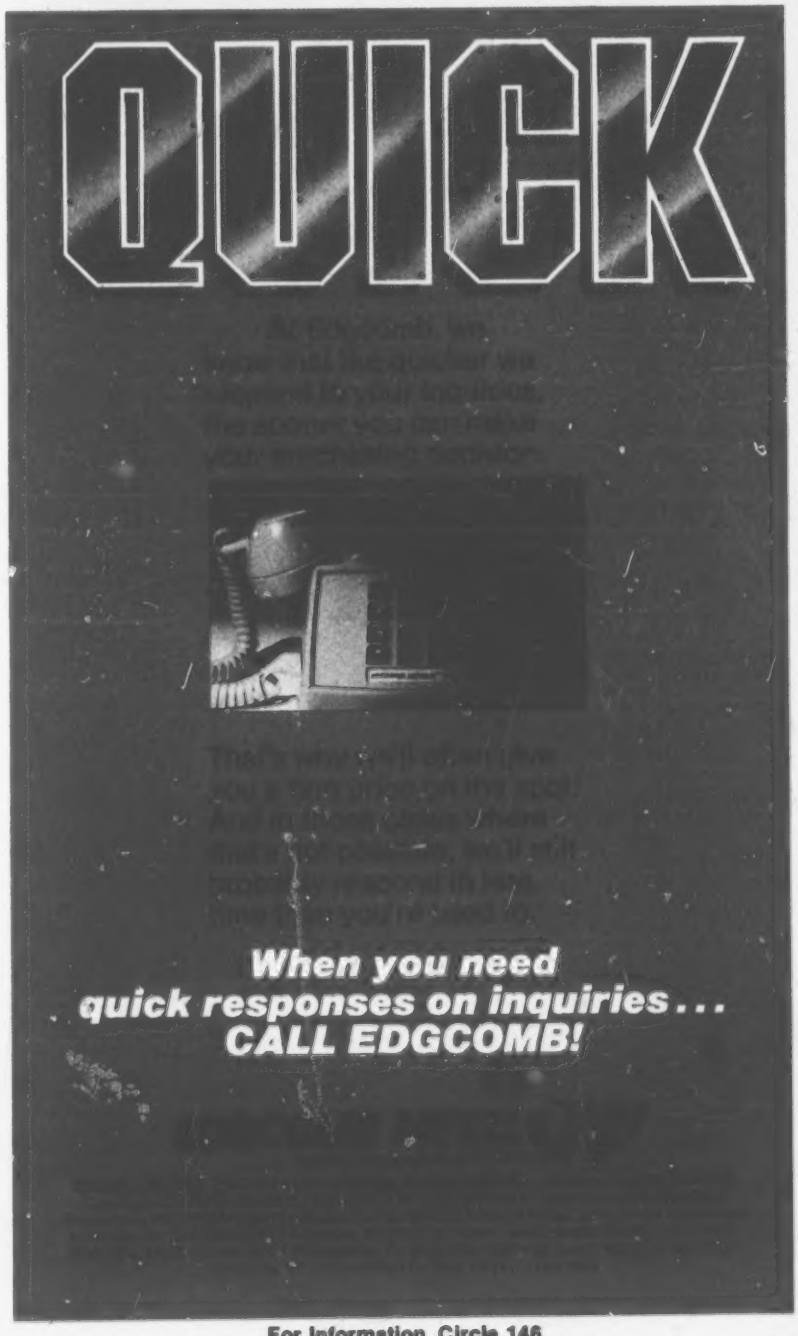
	1978	1979	1980	1981	1982	1983
Jan.	544.94	624.18	758.95	643.35	595.66	578.82
Feb.	549.69	660.84	785.67	617.29	560.43	584.84
Mar.	514.98	684.35	812.18	607.75	589.40	598.42
Apr.	497.24	678.60	785.72	597.65	570.95	619.66
May	526.96	683.46	784.62	566.09	583.13	612.03
June	555.12	697.82	756.62	569.28	566.40	600.44
July	559.52	699.59	752.61	591.87	561.69	593.28
Aug.	592.37	678.57	751.51	652.76	564.08	583.50
Sept.	627.15	697.18	778.59	675.15	572.26	579.72
Oct.	681.05	714.24	744.38	696.17	556.11	580.56
Nov.	691.11	724.99	697.21	709.45	558.37	583.76*
Dec.	636.69	752.17	655.05	706.72	561.57	582.00*
Average	581.40	691.33	N.A.	636.63	586.75	591.41*

† U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo, beginning June, 1980. Prior prices are C.I.F., New York, based on Penang picul price.

N.A.—Not Applicable

*Estimate





For Information, Circle 146

IRON ORE

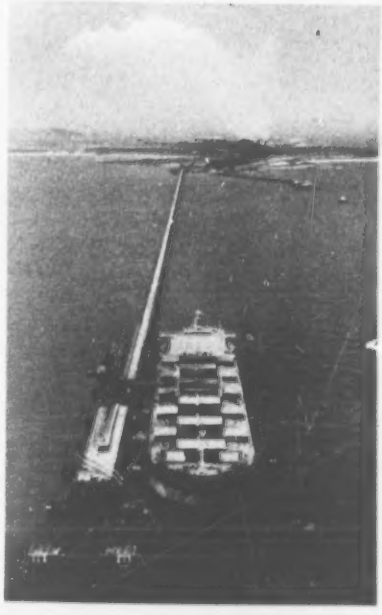
Pig Iron, Production

Net Tons

Year	Basic	Bessemer	Low phosphorous	Foundry	Malleable	All Other, incl. Direct Castings Silvery Pig Iron	Pig Iron
1972	83,961,000	1,336,000	105,000	1,533,000	2,186,000	370,000	88,942,000
1973	96,202,000	1,242,000	101,000	1,581,000	1,352,000	359,000	100,837,000
1974	91,193,000	1,100,000	106,000	1,528,000	1,382,000	600,000	95,909,000
1975	75,911,000	1,087,000	140,000	1,321,000	814,000	850,000	79,923,000
1976	82,894,000	1,150,000	112,000	1,489,000	800,000	425,000	86,964,000
1977	78,196,000	254,000	122,000	1,610,000	690,000	454,000	81,328,000
1978	84,497,000	295,000	110,000	1,856,000	471,000	450,000	87,679,000
1979	84,047,000	12,000	178,000	1,457,000	1,003,000	306,000	87,003,000
1980	66,964,000	39,000	72,000	713,000	799,000	134,000	68,721,000
1981	71,166,000	56,000	132,000	1,221,000	929,000	66,000	73,750,000
1982	42,604,000	—	56,000	239,000	377,000	33,000	43,309,000
1983	—	—	—	—	—	—	48,700,000*

*Iron Age estimate.

Source American Iron and Steel Institute



Supply of Iron Ore in the United States

Year	Domestic Shipments	Exports	Imports	Net Supply*
1975	80,267,092	2,537,451	46,742,190	124,471,831
1976	86,646,674	2,997,333	43,933,333	127,582,674
1977	67,050,341	2,143,047	37,904,705	102,811,999
1978	83,207,000	4,213,194	33,616,378	112,610,184
1979	92,053,933	5,147,657	33,776,072	120,682,348
1980	72,628,819	5,689,198	25,058,200	91,997,821
1981	66,302,487	5,545,518	28,333,974	89,090,943
1982	35,864,871	3,177,620	14,715,345	47,402,596
1983**	38,000,000	3,100,000	10,000,000	44,900,000

*Domestic shipments minus exports, plus imports. **Estimate

Source: American Iron Ore Association

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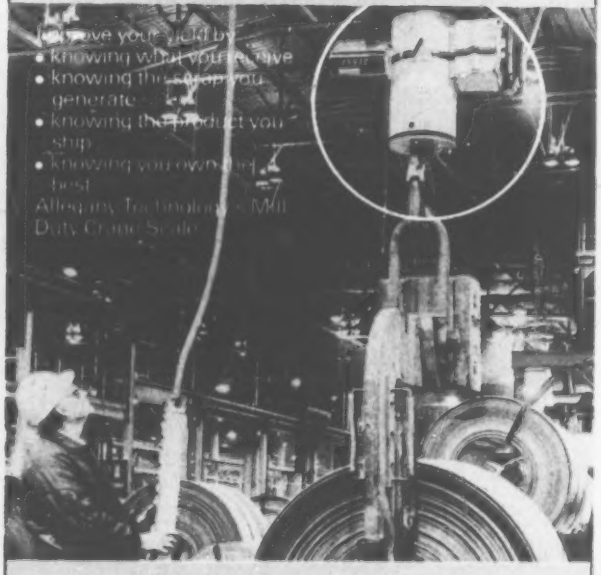

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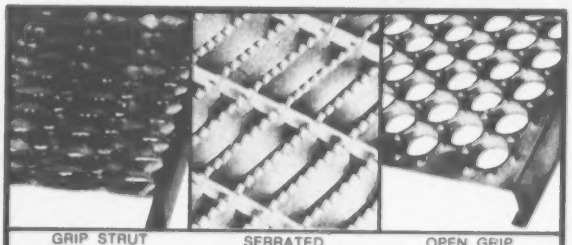
For Information, Circle 147



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For Information, Circle 151

NONFERROUS PRICES

Lead, Common Grade Price

Cents Per Pound

	1977	1978	1979	1980	1981	1982	1983
Jan	26.50	33.00	40.56	51.29	34.13	29.95	22.40
Feb	28.67	33.00	43.75	50.00	30.66	28.00	21.95
Mar	30.50	33.00	46.00	49.55	35.28	26.00	21.75
Apr	31.00	33.00	48.00	45.45	37.63	26.50	22.00
May	31.00	31.23	49.76	36.00	37.00	26.50	21.55
June	31.00	31.00	57.62	34.25	38.25	25.80	21.20
July	31.00	31.00	58.60	35.77	41.25	27.90	21.15
Aug	31.00	32.40	57.97	40.97	44.63	27.90	21.15
Sept	31.00	34.30	58.60	42.40	42.50	26.75	22.00
Oct	31.00	37.00	60.74	45.00	37.63	26.00	25.50
Nov	32.00	38.00	58.27	44.00	34.46	23.75	26.00*
Dec	33.00	38.00	57.02	39.00	31.86	22.00	26.00*
Average	30.64	33.74	53.06	42.81	37.11	26.42	26.42

*Estimate

Zinc Prices

1971-81 Prime Western
1982—High Grade†
Cents Per Pound

	1972	1973	1974	1975	1976	1977
Jan	17.00	19.50	31.18	39.00	37.66	37.00
Feb	17.00	19.50	31.75	39.00	37.00	37.00
Mar	17.50	19.63	32.70	38.75	37.00	37.00
Apr	17.50	20.38	34.75	38.75	37.00	37.00
May	18.00	20.38	34.75	38.75	37.00	36.40
June	18.50	20.38	35.25	38.75	37.00	34.00
July	18.50	20.38	36.97	38.75	37.00	34.00
Aug	18.50	20.38	38.00	38.75	37.00	34.00
Sept	18.50	20.38	38.95	38.75	37.00	34.00
Oct	18.50	20.38	39.00	38.75	37.00	32.80
Nov	19.50	20.38	39.00	38.75	37.00	31.17
Dec	20.00	30.00	39.00	38.75	37.00	30.50
Average	18.25	20.97	35.94	38.79	37.06	34.57

	1978	1979	1980	1981	1982†	1983
Jan	30.50	35.00	37.50	41.25	42.90	39.50
Feb	30.97	36.89	38.67	41.63	43.00	40.00
Mar	29.00	38.05	38.92	43.63	43.00	38.90
Apr	29.00	38.50	38.50	43.75	38.75	38.25
May	29.00	38.50	37.50	46.50	36.00	40.00
June	29.90	38.57	36.50	46.63	35.90	40.06
July	30.00	39.64	35.50	46.63	38.50	40.90
Aug	31.88	36.81	35.97	49.75	39.50	43.50
Sept	32.75	36.07	36.60	49.75	41.00	46.00
Oct	33.75	37.50	37.50	46.50	41.00	46.80
Nov	34.75	37.06	38.60	46.75	40.20	49.00*
Dec	34.75	37.50	40.50	43.75	38.25	49.00*
Average	31.28	37.51	37.70	45.54	39.55	42.65*

*Estimate.

Electrolytic Nickel

Cents Per Pound, New York, Duty Paid

Oct. 1, 1976 to July 25, 1977	241.00
Published price suspended through Feb. 1, 1979	
Feb. 2, 1979 to Mar. 13, 1979	210.00
Mar. 14, 1979 to April 10, 1979	230.00
April 11, 1979 to May 13, 1979	255.00
May 14, 1979 to June 6, 1979	290.00
June 7, 1979 to Dec. 4, 1979	305.00
Dec. 5, 1979 to Feb. 27, 1980	325.00
Feb. 28, 1980 to Nov. 24, 1981	350.00
Nov. 25, 1981 to	329.00

Source: Inco, Inc.

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PRICE & PRODUCTION DATA

(Effective December 27, 1983)

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
North East Coast	188	189	183	125
Buffalo	8	9	9	29
Pittsburgh	204	225	210	67
Youngstown	95	107	59	43
Cleveland	135	132	138	49
Detroit	125	130	127	82
Chicago	453	519	513	310
Cincinnati	91	90	89	49
St. Louis	58	63	65	25
Southern	162	174	149	44
Western	81	77	69	57
U.S. Production	1,600	1,717	1,611	880

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports. Rail transportation, handling and unloading may be charged to the account of the buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural).....gross-ton 80.50-86.9*
Old range, non-bessemer .....gross-ton $32.78
Mesabi, regular-unscreened .....gross-ton $32.53
Mesabi, non-bessemer..... gross-ton $30.03-31.53**

*80.50¢—Pickands Mather as of 1/27/81.
86.9¢—U. S. Steel as of 3/15/82. Cleveland-Cliffs as of 2/26/82, Oglebay Norton as of 3/25/82, and Hanna Mining as of 2/26/82.
**Effective 8/1/83.

STEEL PRODUCTION, COMPOSITE PRICES

(Effective December 27, 1983)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1983	To Date 1982
Net tons, in thousands	1,600	1,717	82,075	70,036
Capability Utilization Rate	55.4	59.5	55.6	46.4

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 9/1/83)	26.822	26.822	26.822	25.297
Pig Iron* * (Net ton=2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.* * * (Gross ton=2240 lbs.)	$ 89.50	$ 87.17	$ 84.50	$ 55.83
No. 2 bundles	$ 58.17	$ 58.17	$ 52.50	$ 39.50

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh .	$ 96.50	$ 90.50	$ 88.50	$ 57.50
No. 1 steel, Philadelphia	86.50	86.50	80.50	54.50
No. 1 steel, Chicago.....	85.50	84.50	84.50	55.50
No. 1 bundles, Detroit..	86.50	86.50	81.50	41.50
Low Phos., Youngstown	88.50	88.50	84.50	51.50
No. 1 mach'y cast., Pgh	79.50	79.50	109.50	61.50
No. 1 mach'y cast., Phila	97.50	97.50	95.50	98.50
No. 1 mach'y cast., Chi..	113.50	113.50	111.50	104.50

*Finished Steel Composite: Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.
* *Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
* * *Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

(Effective December 27, 1983) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum	81.00	76.00-81.00	9/27/83
Copper (C)	67.00	66.00-67.00	12/20/83
Lead	24.00-27.00	25.00-27.00	12/13/83
Magnesium Ingot	138.00	134.00-138.00	6/1/83
Nickel	329.00	350.00	11/25/81
Titanium Sponge	555.00-585.00	555.00	4/29/82
Zinc	49.00	46.00-49.00	10/25/83

ALUMINUM: 99.5%. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, delivered. NICKEL: electro., Port Colborne, Canada. ZINC: high grade.

Antimony, American Laredo, Texas	$2.00
Beryllium-aluminum 5% Be, per lb. contained Be	$215.00
Beryllium-copper, per lb. cont. Be	$130.00
Beryllium 97% powder 200	$178.00
Bismuth, ton lots	$1.80-$1.90
Cadmium, ton lots	$1.25
Calcium, ton lots, crown	$3.05
Chromium, 99.8%	$3.75
Cobalt, 99%, cathode	$12.50
Gold per troy oz.	$377.75
Indium, dollars per troy oz.	$3.20
Iridium, dollars per troy oz.	$600
Magnesium sticks, 10,000 lbs.	$1.91
Mercury, per 76-lb. f.o.b. N.Y.	$325-$340
Molybdenum, lb. tech. moly oxides, 20 lb. MO can	$5.85
Nickel oxide sinter at U.S. points of entry	$3.12
Palladium, per troy oz.	$140
Platinum, per troy oz.	$475
Rhodium, per troy oz.	$600.00
Silver ingots, per troy oz.	$8.82
Vanadium	$4.94
Zirconium sponge	$12.00-$17.00

(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo.)

Dec. 19—565.12 Dec. 22—566.44
Dec. 20—566.04 Dec. 23—566.11
Dec. 21—567.42

Scrap Prices
Brass Mill Scrap

(Cents per lb; over 20,000 lbs. add 1¢ per lb)

	Solids	Turning
Copper	64½	61
Yellow brass	58⅞	57½
Red brass	60¾	59¼
Comm. bronze	61¼	59¾
Mang. bronze	61¼	58¼
Free cutting rod ends	57	56

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	60
No. 2 copper wire	50
Light copper	42

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	56
No. 2 copper wire	46
Light copper	38
No. 1 composition	52
No. 1 comp. turnings	50
Hvy. yellow brass solids	32
Hvy. yellow brass turnings	27
Radiators	41

Aluminum

New mixed clips	50	—51
Old sheet	48	—49
Old cast	48	—49
Clean dry borings	48	—49

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	41	—42
Mixed L.C. clips	36	—37
Old sheets and cast	33	—34
Borings and turnings	24	—25
Duraluminum clippings	29	—30

Copper and Brass

No. 1 copper wire	50	—51
No. 2 copper wire	42	—43
Light copper	38	—39
Radiators	34	—35
No. 1 composition	43	—44
No. 1 composition turn'gs	41	—42
Cocks and faucets	29	—30
Clean heavy yellow brass	26	—27
Brass Pipe	28	—29
New soft brass clippings	42	—43

Lead

Heavy soft lead	8	— 9
Whole batteries	3	— 4
Type metal	15	—16
Electrotype	13	—14

Nickel

Nickel solids	110	—120
Nickel rod ends	110	—120
Nickel sheets, clips	110	—120
Nickel turnings	50	— 60

Zinc

New zinc clippings	15	—16
Old diecast zinc	10	—11

EFFECTIVE DEC. 27, 1983

(Effective December 27, 1963) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of *Iron Age* editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 96.00 to	$ 97.00
No. 2 hvy. melting	86.00 to	87.00
No. 1 dealer bundles	119.00 to	120.00
No. 1 factory bundles (auto)	122.00 to	123.00
No. 2 bundles	59.00 to	60.00
No. 1 busheling	119.00 to	120.00
Machine shop turn.	16.00 to	17.00
Shoveling turnings	50.00 to	51.00
Cast iron borings	49.00 to	50.00
Low phos. punchings plate	119.00 to	120.00
Heavy turnings	86.00 to	87.00
No. 1 RR hvy. melting	116.00 to	117.00
Rails 2 ft. and under	121.00 to	122.00
Scrap rails, random lgth.	107.00 to	108.00
RR specialties	115.00 to	116.00
No. 1 machinery cast	79.00 to	80.00
Cupola cast	72.00 to	73.00
Heavy breakable cast	30.00 to	31.00
Stainless		
18-8 bundles and solids	580.00 to	590.00
18-8 turnings	480.00 to	490.00

Chicago

No. 1 hvy. melting	$ 85.00 to	$ 86.00
No. 2 hvy. melting	82.00 to	83.00
No. 1 dealer bundles	114.00 to	115.00
No. 1 factory bundles (auto)	113.00 to	114.00
No. 2 dealer bundles	59.00 to	60.00
No. 1 busheling	108.00 to	109.00
Shredder scrap	103.00 to	104.00
Machine shop turn.	39.00 to	40.00
Mixed bor. and turn.	40.00 to	41.00
Shoveling turnings	53.00 to	54.00
Cast iron borings	59.00 to	60.00
Low phos. forge crop	120.00 to	121.00
Low phos. punchings plate ¼ in. and heavier	128.00 to	129.00
Low phos. 2 ft. and under	123.00 to	124.00
No. 1 RR hvy. melting	109.00 to	110.00
Scrap rails, random lgth.	93.00 to	94.00
Reroller rails	108.00 to	109.00
Rails, 2 ft. and under	118.00 to	119.00
RR couplers and knuckles	108.00 to	109.00
RR car axles	124.00 to	125.00
No. 1 machinery cast	113.00 to	114.00
Cupola cast	104.00 to	105.00
Stove plate	104.00 to	105.00
Steel car wheels	115.00 to	116.00
Stainless		
18-8 bundles and solids	560.00 to	570.00
18-8 turnings	460.00 to	470.00
430 bundles and solids	135.00 to	140.00
430 turnings	100.00 to	105.00

Philadelphia

No. 1 hvy. melting	$ 85.00 to	$ 86.00
No. 2 hvy. melting	70.00 to	73.00
No. 1 dealer bundles	100.00 to	103.00
No. 2 dealer bundles	54.00 to	57.00
No. 1 busheling	100.00 to	103.00
Shredder scrap	100.00 to	103.00
Machine shop turn.	26.00 to	29.00
Mixed bor. and turn.	26.00 to	29.00
Shoveling turnings	45.00 to	48.00
Low phos. 5 ft. and under	100.00 to	103.00
Low phos. 2 ft. punchings	112.00 to	115.00
Electric furnace bundles	117.00 to	120.00
RR specialties	100.00 to	103.00
Rails, 2 ft. and under	114.00 to	117.00
Cupola cast	67.00 to	70.00
Heavy breakable cast	53.00 to	56.00
No. 1 machinery cast	96.00 to	99.00

Detroit

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 84.00 to	$ 85.00
No. 2 hvy. melting	61.00 to	62.00
No. 1 dealer bundles	86.00 to	87.00
No. 2 bundles	42.00 to	43.00
No. 1 busheling	85.00 to	86.00
Drop forge flashings	60.00 to	61.00
Machine shop turn.	33.00 to	34.00
Mixed borings and turn.	20.00 to	21.00
Shoveling turnings	33.00 to	34.00
Cast iron borings	41.00 to	42.00
Heavy breakable cast	35.00 to	36.00
Mixed cupola cast	51.00 to	52.00
Automobile cast	74.00 to	75.00
Stainless		
18-8 bundles and solids	460.00 to	470.00
18-8 turnings	340.00 to	350.00
430 bundles and solids	125.00 to	135.00

Youngstown

No. 1 hvy. melting	$ 80.00 to	$ 83.00
No. 2 hvy. melting	61.00 to	64.00
No. 1 dealer bundles	92.00 to	95.00
No. 2 dealer bundles	37.00 to	40.00
Machine shop turn.	14.00 to	17.00
Shoveling turnings	19.00 to	22.00
Low phos. plate	87.00 to	90.00
Electric furnace bundles	82.00 to	85.00
Galvanized bundles	76.00 to	79.00

Cleveland

No. 1 hvy. melting	$ 76.00 to	$ 79.00
No. 2 hvy. melting	44.00 to	47.00
No. 1 dealer bundles	94.00 to	97.00
No. 1 factory bundles	100.00 to	103.00
No. 2 bundles	23.00 to	26.00
No. 1 busheling	93.00 to	96.00
Machine shop turn.	12.00 to	15.00
Mixed bor. and turn.	12.00 to	15.00
Shoveling turnings	14.00 to	17.00
Cast iron borings	17.00 to	20.00
Cut structural & plates, 2 ft. and under	105.00 to	108.00
Low phos. punchings plate	105.00 to	108.00
Drop forge flashings	62.00 to	65.00
Foundry steel, 2 ft. & under	70.00 to	75.00
No. 1 RR hvy melting	87.00 to	90.00
Rails, 2 ft. and under	112.00 to	115.00
Rails, 18 in. and under	113.00 to	116.00
Steel axle turnings	67.00 to	70.00
Railroad cast	94.00 to	97.00
No. 1 machinery cast	97.00 to	100.00
Cupola cast	63.00 to	66.00
Stove plate	48.00 to	51.00
Stainless		
18-8 bundles	375.00 to	385.00
18-8 turnings	325.00 to	335.00
430 bundles	80.00 to	85.00

Buffalo

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 70.00 to	$ 71.00
No. 2 hvy. melting	53.00 to	55.00
No. 1 busheling	82.00 to	83.00
No. 1 dealer bundles	82.00 to	83.00
No. 2 bundles	38.00 to	39.00
Machine shop turn.	15.00 to	16.00
Mixed bor. and turn.	13.00 to	14.00
Shoveling turnings	17.00 to	18.00
Cast iron borings	15.00 to	16.00
Low phos. plate	83.00 to	84.00
Structural and plate, 2 ft. and under	84.00 to	85.00
Rails, 2 ft. and under	95.00 to	96.00
Scrap rails, random lgth.	74.00 to	75.00
No. 1 machinery cast	71.00 to	72.00
No. 1 cupola cast	59.00 to	60.00

St. Louis

No. 1 hvy. melting	$ 77.00 to	$ 78.00
No. 2 hvy. melting	66.00 to	67.00
Foundry steel, 2 ft.	66.00 to	67.00
No. 1 dealer bundles	77.00 to	78.00
No. 2 bundles	63.00 to	64.00
Machine shop turn.	20.00 to	21.00
Shoveling turnings	27.00 to	28.00
Cast iron borings	38.00 to	39.00
No. 1 RR hvy. melting	87.00 to	88.00
Rails, random length	81.00 to	82.00
Rails, 18 in. and under	97.00 to	98.00
RR specialties	90.00 to	91.00
Cupola cast	70.00 to	71.00
Heavy breakable cast	48.00 to	49.00
Stove plate	80.00 to	81.00
Cast iron car wheels	52.00 to	53.00
Rerolling rails	102.00 to	103.00
Unstripped motor blocks	61.00 to	62.00

Birmingham

No. 1 heavy melting	$ 73.00 to	$ 74.00
No. 2 heavy melting	69.00 to	70.00
No. 1 dealer bundles	76.00 to	77.00
No. 2 bundles	55.00 to	56.00
No. 1 busheling	75.00 to	76.00
Shredder scrap	96.00 to	97.00
Machine shop. turn.	27.00 to	28.00
Shoveling turnings	35.00 to	36.00
Cast iron borings	37.00 to	38.00
Electric furnace bundles	69.00 to	70.00
Elec. furnace, 3 ft. & under	76.00 to	77.00
Structural and plate, 2 ft.	101.00 to	102.00
Structural and plate, 4 ft.	94.00 to	95.00
No. 1 RR hvy. melting	94.00 to	95.00
Scrap rails, random lgth.	88.00 to	89.00
Rails, 18 in. and under	103.00 to	104.00
Angles and splice bars	95.00 to	96.00
No. 1 cupola cast	90.00 to	91.00
Unstripped motor blocks	69.00 to	70.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 70.00 to	$ 71.00
No. 2 hvy. melting	64.00 to	65.00
No. 1 dealer bundles	81.00 to	82.00
No. 2 bundles	37.00 to	38.00
Machine shop turn.	13.00 to	14.00
Shoveling turnings	15.00 to	16.00
Cast iron borings	22.00 to	23.00
Low phos. 18 in. and under	102.00 to	103.00
Rails, random length	81.00 to	82.00
Rails, 2 ft. and under	97.00 to	98.00
No. 1 cupola cast	73.00 to	74.00
Heavy breakable cast	36.00 to	37.00
Drop broken cast	88.00 to	89.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 46.00 to	$ 47.00
No. 2 hvy. melting	40.00 to	41.00
No. 2 dealer bundles	23.00 to	27.00
Mixed bor. and turn.	11.00 to	13.00
Machine shop turn.	6.00 to	7.00
Shoveling turnings	14.00 to	15.00
Clean cast, chem. borings	35.00 to	36.00
No. 1 machinery cast	89.00 to	90.00
Mixed yard cast	50.00 to	51.00
Heavy breakable cast	10.00 to	12.00
Stainless		
18-8 prepared solids	490.00 to	510.00
18-8 turnings	390.00 to	410.00
430 prepared solids	80.00 to	100.00
410 solids	70.00 to	80.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 62.00 to	$ 64.00
No. 2 hvy. melting	52.00 to	54.00
No. 1 dealer bundles	76.00 to	78.00
No. 2 bundles	40.00 to	42.00
No. 1 busheling	80.00 to	82.00
Shredder scrap	78.00 to	80.00
Machine shop turn.	12.00 to	14.00
Shoveling turnings	18.00 to	20.00
No. 1 machinery cast	90.00 to	95.00
Mixed cupola cast	47.00 to	49.00
Heavy breakable cast	18.00 to	20.00

San Francisco

No. 1 hvy. melting	$ 46.00 to	$ 48.00
No. 2 hvy. melting	37.00 to	39.00
No. 1 dealer bundles	35.00 to	36.00
No. 2 dealer bundles	15.00 to	18.00
Machine shop turn.	6.00 to	8.00
Cast iron borings	6.00 to	8.00
No. 1 cupola cast	73.00 to	75.00

Los Angeles

No. 1 hvy. melting	$ 48.00 to	$ 50.00
No. 2 hvy. melting	38.00 to	40.00
No. 1 dealer bundles	37.00 to	39.00
No. 2 dealer bundles	15.00 to	18.00
Machine shop turn.	6.00 to	8.00
Shoveling turnings	10.00 to	12.00
Cast iron borings	6.00 to	8.00
Elec. furnace, 1 ft. and under (foundry)	75.00 to	77.00
No. 1 cupola cast	75.00 to	77.00

Seattle

No. 1 hvy. melting	$ 71.00 to	$ 73.00
No. 2 hvy. melting	60.00 to	62.00
No. 2 bundles	40.00 to	42.00
No. 1 cupola cast	96.00 to	98.00
Mixed yard cast	83.00 to	86.00

Hamilton, Ont.

Brokers buying price per net ton on cars:

No. 1 heavy melting	$ 65.00
No. 2 heavy melting cut 2 ft. and under	62.00
No. 1 dealer bundles	70.00
No. 2 bundles	38.00
Mixed steel scrap	44.00
Bush. new fact. prep'd.	68.00
Bush. new fact. unprp'd.	60.00
Machine shop turn.	33.00
Short steel turn.	36.00
Mixed bor. and turn.	23.00
Cast scrap	58.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 82.00 to	$ 83.00
No. 2 hvy. melting	66.00 to	67.00
No. 2 bundles	41.00 to	43.00
Machine shop turn.	22.00 to	23.00
Crushed turnings	44.00 to	46.00
Shredder scrap	82.00 to	83.00
Cut structural plate 2 ft. and under	94.00 to	96.00
Unstripped motor blocks	57.00 to	59.00
Cupola cast	80.00 to	82.00